

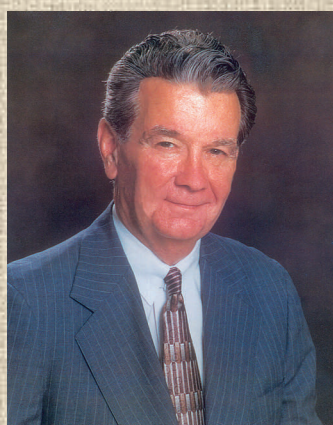


## HAMPDEN COUNTY REGISTRY OF DEEDS

### DAMS FILE COLLECTION

### BOOK D25 – 3 (L-T)

Reports Section – Dams - Hampden County Massachusetts



*Donald E. Ashe, Register  
Hampden County Registry of Deeds,  
a Division of the Office of  
William Francis Galvin, Secretary of the Commonwealth*

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WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
**BOWERS AND PEQUOT STREETS**  
**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**  
**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

Jan. 3, 1958  
CD Longmeadow

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

Gentlemen:

Inspections of dams in the Town of Longmeadow have now completed the inspection routine in this community and all dams have been examined one or more times during the year 1957. The following is a report on the condition of the various dams situated in Longmeadow.

A. Turner Park Dam

Conditions at this dam were found to be satisfactory. There is a screen around the overflow pipe to prevent the entrance of debris and the loss of any fish in the pond. This screen is clean and has always been maintained in a very clean condition.

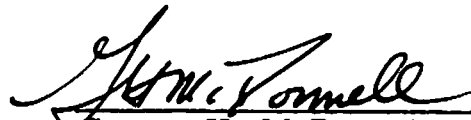
B. Longmeadow Country Club Dam

This dam was found to be in very good condition.

C. Longmeadow Swimming Pool Dam

This is not a dam in accordance with the provisions of the law. It is examined from time to time to note any conditions that might be detrimental to the structure in order that the Town could be notified in advance of any impending necessary maintenance. When last inspected, this small structure was found to be in good condition.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Longmeadow  
Dec. 3, 1959

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections of dams situated within the Town of Longmeadow have now been completed and all dams situated in Longmeadow have been examined at least once during the year 1959. The following is a report on the condition of the various dams situated in Longmeadow:

A. Turner Park Dam

The dam embankment and spillway tube were found to be in satisfactory condition. The screen at the spillway tube opening was found to be clean as in each inspection in recent years.

B. Longmeadow Country Club

The earth embankment formed by the highway is in very good condition. The masonry spillway is in good condition also.

C. Longmeadow Swimming Pool Dam

This structure is not a dam in accordance with the provisions of the law. It is examined from time to time to note any conditions that might be detrimental to the structure in order that the Town could be notified in advance of any impending necessary maintenance. The pool is in the same general condition as noted in the past. There is more deterioration of the concrete.

Respectfully submitted,



George H. McDonnell  
County Hydraulic Engineer

GHM/mb



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Longmeadow  
Dec. 9, 1960

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections of dams located within the Town of Longmeadow have now been completed and all dams in that community have been examined at least once during the year 1960. The following is a report on the condition of the dams located within Longmeadow.

A. Turner Park Dam

The embankment of this dam is in satisfactory condition. It is quite wide and massive, based upon its height. Much of the embankment has been built up thru the deposit of miscellaneous debris, fill and boulders downstream of the original embankment. However, this material is fairly well consolidated and adds to the strength of the dam. The spillway pipe intake screen was found to be in relatively poor condition at the time of the last inspection on Dec. 2nd. of this year. The screen was collapsed in part and, as existing at that time, could be forced into the pipe if it did collapse, thus plugging in part or completely the spillway facility. A stronger and better screen should be built at the intake pipe.

B. Longmeadow Country Club

The dam embankment was found to be in fairly good condition. At the time of the last inspection the pond was empty and the drawdown gate was found open. The masonry spillway was in good condition.

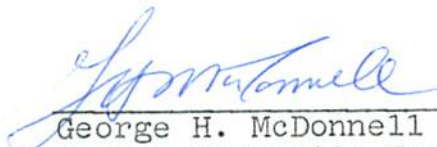
C. Longmeadow Swimming Pool Dam

The pool dam itself is in fair condition. The spillway

CD Longmeadow  
Dec. 9, 1960

inlet was found to be partly plugged with debris but water still flowed into the outlet system. The pool itself is quite dilapidated and apparently has been abandoned. Water flowing from the stream, if prevented from entering the drainage system by debris, would pass thru the old pool, across a short lawn area and return to the brook course without damaging any private property other than possibly damaging some lawn area around the Park Department Building. Since this is not a serious condition and the Park Department personnel are in the area each day, it does not seem necessary to submit a letter report to the Town in connection with this facility. In fact, as now existing, it is nothing more than a drainage system and is not strictly a dam coming under County jurisdiction.

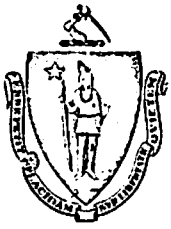
Respectfully submitted



George H. McDonnell  
County Hydraulic Engineer

GHM/cmb





Commonwealth of Massachusetts

# County of Hampden

Springfield, Mass.

Office of the  
County Commissioners  
52 State Street

William F. Stapleton  
Chairman

~~XXXXXX~~

Floyd W. Fradet

Stephen A. Moynahan

December 17, 1969

Park Commissioners  
Town of Longmeadow  
Town Office Building  
Longmeadow, Massachusetts

Re: Town Owned Dam  
Turner Park

Gentlemen:

In accordance with the provisions of Chapter 253, Section 45, of the General Laws, Tercentenary Edition, relative to the inspection, condition and safety of the dams in Hampden County, you are hereby advised that the dam owned by the Town of Longmeadow and located at Turner Park has been inspected by the County Hydraulic Engineer and your attention is called to the conditions noted and reported to us relative to this dam.

"The undersigned submitted a report on the condition of dams located in the Town of Longmeadow on December 2, 1969. At that time, I reported that Turner Park Dam, now owned by the Town of Longmeadow, was in need of attention. The spillway vertical shaft or the pipe through the embankment appeared to be plugged for water level in storage in the pond was observed to be above the top of the inlet screen on the spillway pipe and no flow was observed. Only a trickle of water emerged from the toe area of the dam at the end of the spillway pipe.

The Parks Department was contacted by telephone and advised of the need for cleaning of the spillway pipe. The undersigned was informed that the work would be accomplished shortly.

In the meantime, two call back inspections have been made at this dam. One inspection was made on Friday, November 28, 1969, while the most recent call back inspection was made on Friday, December 12, 1969. For the record, the initial 1969 inspection of Turner Park Dam was made on November 19, 1969.

At each of the call back inspections it was noted that no apparent work had been done to unplug the blocked spillway facilities. At the inspection conducted today, December 12, 1969, the undersigned observed that the water level in storage is rising slowly but steadily, as a result of rainy weather. Inflow to the pond exceeds the trickle of water flowing out through the plugged spillway.

If the spillway facility is not cleaned and made functional, there is a good possibility the pond will rise to a point where the dam embankment may be topped and the dam could fail should precipitation continue.

It is recommended that your Board direct the Park Department of Longmeadow to correct the condition at the spillway. All material plugging the spillway vertical pipe and/or the pipe through the dam embankment should be removed and the end of the pipe freed of any obstruction which may be contributing to the present problem.

It is recommended that the Town be required to clean the facility and make it functional by December 30, 1969. If your Board concurs, the undersigned will schedule another inspection on that date to be certain that the directive has been followed. "

It is essential that the dam be properly maintained and that the spillway facility be functional to pass surplus water through the dam embankment without unnecessarily raising the water level in storage. The Board of County Commissioners concurs in the recommendation of the County Hydraulic Engineer and under the provisions of Chapter 253 of the General Laws of the Commonwealth of Massachusetts, and within the applicable chapters, directs that the necessary work of properly cleaning out the spillway be completed on or before December 30, 1969. This work is to include the clearing of all debris from the vertical spillway pipe and the spillway facility which extends through the embankment. The spillway facility must be made functional, and any repairs found necessary also must be made.



All debris floating in the pond which could cause plugging of the spillway shall be removed from the pond. A proper protective screen or rack shall be provided over the opening to the spillway facility and this opening shall be examined from time to time and kept clear of any interference to free flow.

If you desire any further information in connection with this matter, please do not hesitate to call upon us.

Very truly yours,

BOARD OF COUNTY COMMISSIONERS

BY: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Town Of Longmeadow, Massachusetts*  
*Recreation and Parks Department*

*Longmeadow  
Turner Park*

*Board of Park Commissioners*

GORDON A. CHASE, CHAIRMAN  
ROBERT D. DEANE  
LEONARD W. STONE  
JAMES A. RUSSELL  
MICHAEL S. RATNER

*Office*

735 LONGMEADOW STREET 01106  
PHONE 1-413-567-0633

HARRY E. REYNOLDS, DEd.  
SUPERINTENDENT

August 14, 1970

Office of the County Commissioners  
County of Hampden  
52 State Street  
Springfield, Massachusetts

Gentlemen:

With regard to yours of the twelfth, please be informed that work on the dam at Turner Park has been contracted for. We expect this work to start in the very near future.

Sincerely yours,

*Gordon A. Chase*

Gordon A. Chase, Chairman  
Longmeadow Park Commission

GAC:d

CC: Edward Christianson

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

*CONSULTING ENGINEERS*

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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Longmeadow  
May 26, 1970

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Re: Turner Park Dam  
Town of Longmeadow

On Monday, May 18th, a serious situation developed at the Turner Park Dam owned by the Town of Longmeadow. The heavy rain of Sunday, May 17th and again Monday, May 18th, raised the water level in the pond, because of the plugged spillway pipe, until water in storage was very near the top of the earth embankment. On Monday, personnel of the Town of Longmeadow attempted to free the spillway pipe during the morning and early afternoon hours, with no success. During the afternoon, a pipe syphon was laid over the top of the dam, but apparently due to air leaks at rubber ring joints, the syphon would not work successfully.

On Tuesday morning, May 19th, the water level in storage had risen higher from the continuous rainfall and it was estimated that the water surface in the pond was probably 2-1/2 ft. above normal elevation. Very little freeboard remained at the earth embankment forming the dam.

The undersigned made an inspection of conditions on Tuesday morning, May 19th, and at that time, Town personnel were preparing to excavate a ditch, and by mid-morning did begin the excavation of a ditch around the dam embankment, in natural soil, where an 8" pipeline would be laid to drain water from the pond. The pipeline ditch was excavated from the downstream side towards the pond, and as each length of pipe was laid, the ditch was backfilled and tamped. Thus, there was never a continuous



ditch open that would allow a sudden rush of water from the pond should the water break thru on the upstream end of the ditch. Work continued thru the day and the undersigned made a second inspection in the early and mid-afternoon. The pipeline construction was going well, the ditch was on good grade and the pipe itself was being laid at about 3 ft. below the level of water in the pond. A gate valve was installed on the pipeline, at about mid-point, to control the flow of water out of the pond should erosion of the soil develop at the discharge end of the pipeline.

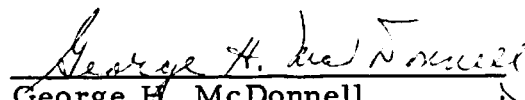
By late afternoon, the pipeline was in place, and completely backfilled and an opening had been made from the pipeline in the ditch to the pond. Pond water was being safely drawn off to the stream valley below.

A re-inspection of facilities at around midnight Tuesday night, May 19th, showed that the pipeline was functioning satisfactorily, the pond level was dropping and discharged water was not causing any erosion or problem downstream.

Since the old spillway facility has given a great deal of trouble during the past year and, since the dam should have a new and reasonably foolproof spillway, it is recommended that the Town of Longmeadow be advised to construct a spillway facility of satisfactory capacity to meet the needs of the drainage area both now and in the future. This facility should be constructed this summer if at all possible.

As conditions now exist at the dam, the structure is safe. However, the emergency drawoff facility is a small diameter pipe, it is inadequate in size for the drainage area based upon a design maximum storm, and it is still susceptible to plugging and damage as a result of vandalism. Thus, this new spillway facility cannot be considered a solution to the problem. It would be good to leave the facility in place and to extend the upstream end of the facility out into the pond, below water level elevation, so that it will continue to function.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Longmeadow  
August 5, 1970

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has completed the inspection of the two dams in the Town of Longmeadow that come under the control and jurisdiction of your Board. Each dam within Longmeadow has been examined more than one time during the year 1970. The dam at Turner Park and now owned by the Town of Longmeadow was inspected many times during the earlier part of the year and during the time that the emergency drawdown pipe was being installed.

The following is a report on the general condition of the two dams located within the Town of Longmeadow.

A. Turner Park Dam (now Town of Longmeadow)

This dam is in the same general condition as noted in my special report to your Honorable Board dated June 1, 1970. The new emergency spillway pipe has resulted in lowering the water level in the pond approximately  $1\frac{1}{2}$  feet. The emergency pipe was functioning when inspected on July 24th and there was no evidence of any erosion at the discharge end of the temporary pipeline near the toe of the dam embankment.

In the opinion of the undersigned, the Town should take some positive action to construct a permanent spillway facility before the fall rainy season. The spillway should also provide for emptying the pond whenever necessary.

The emergency pipeline installed to lower the level of the pond this spring is not a permanent spillway facility nor does it have capacity to serve as such.

A suitable overflow spillway with adequate flood flow capacity could be constructed without draining the pond. However, a spillway constructed with a drain pipe as a part of the structure will necessitate the draining of the pond. The Town should decide on the type of spillway to be installed and, if the spillway is to have a drain, the pond should be emptied before the fall rain and hurricane season occurs. The spillway could then be constructed immediately or construction could be delayed until next year.

B. Longmeadow Country Club Dam

The embankment of this dam was in good condition. It is very wide for its height. It carries a main Town street across its entire length.

The semi-circular masonry spillway was noted to be in satisfactory condition. Water was overflowing the crest and there were no flashboards on the crest.

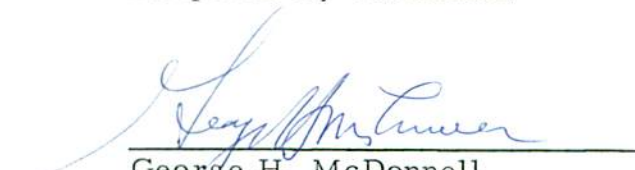
The outlet end of the spillway conduit was satisfactory. Some seepage was observed at the sides of the spillway conduit end wall but this seepage is no worse than noted a year ago.

There is some tree growth on the pond side slope of the embankment but because the dam is massive for its height, this growth is of no concern.

The downstream toe area of the embankment was dry.

In the opinion of the undersigned, the dam is safe and is in very good condition.

Respectively submitted,

  
George H. McDonnell  
County Hydraulic Engineer

## Ludlow Dam Inspections - 1956 - 1970



### 1956 Reports

#### Inspections by Tighe & Bond.

City/Town      Ludlow

Dam      Collins Dam

Dam      Gauthier Dams

Dam      Newcomb Dam

Dam      Carver Dam

Dam      Ludlow Manufacturing Associates Dam

Dam      Red Bridge Dam

Dam      Burella Dam

Dam      Ludlow Town Parks Dam

Dam      Block Dam

Dam      Meunier Dam

Dam      Alden Pond Dam

Dam      Western Massachusetts Electric Company Dam

Dam      Reynolds Dam

Dam      Rozkuszka Dam

Dam      Wilbraham Paper Company Dam

Dam      Springfield Water Works Dam

Dam      Ackerman Dams



Water

Alden Pond

Water

Ludlow Reservoir

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
189 HIGH STREET  
HOLYOKE, MASSACHUSETTS  
GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
March 20, 1956

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL  
C-D Ludlow

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

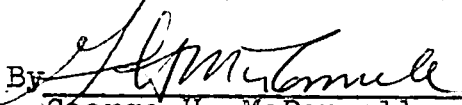
Gentlemen:

On March 8, 1956, the undersigned inspected the following dams in the Town of Ludlow, and reports as follows:

- A. Alden Pond Dam. This dam was breached in the flood of August 1955 and still remains unrepaired. The breach is through the earth embankment at the right of the spillway. No pond is formed and the breach is wide enough and low enough to prevent ponding in time of heavy storm run-off. The structure as it now exists is not dangerous to persons and property downstream insofar as Chapter 253 of the General Laws is concerned.
- B. Newcomb Dam. The Carl S. Newcomb Dam is located northerly of Alden Street and formed a very small pond. During the flood of August 1955, the earth dam was breached at the right of the spillway. No pond is now formed. The breach is wide enough and deep enough to prevent ponding of water and thus presents no danger to persons and property downstream insofar as Chapter 253 of the General Laws is concerned.
- C. Ludlow Mfg. Associates Dam (Red Bridge). This dam was found to be in satisfactory condition and there is no maintenance or repairs necessary for 1956.

Respectfully submitted,

By

  
George H. McDonnell  
County Hydraulic Engineer

GHM/emm

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
GEORGE H. McDONNELL  
PHILIP W. SHERIDAN

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

Sept. 21, 1956  
C.D. Ludlow

The Hon. The Board of County Commissioners  
Hampden County Court House  
31 Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspection of dams in the Town of Ludlow has completed the inspection routine in Ludlow and all dams have now been examined one or more times during 1956. The following is a report on the condition of the various dams in the Town of Ludlow:

(a) Newcomb Dam

This dam was a small earthen structure located on a brook just northerly of the intersection of Poole Street and Alden Street. During the flood of August, 1955, the central portion of the dam was washed through and a large breach formed. No repair work has been done on this dam and the breach still exists in its natural condition. No pond is formed by the dam and the structure presents no danger to persons and property downstream.

(b) Ludlow Mfg. Associates Dam (Red Bridge)

This dam was not damaged by the August, 1955, flood. The structure is in good condition. The masonry of the overflow is in a good state of repair. The earthen dike shows no evidence of damage having occurred during the heavy rains of 1955 or the recent heavy rains of the past month. The dam, the dike, and abutments are in good condition.

— (c) Collins Dam (Wilbraham Paper Co.)

This dam is in the same condition as outlined in previous special reports. The right abutment area should be properly repaired. At the present time the fill at this abutment is a granular material temporarily placed to provide a work area for the construction of the permanent abutment and to prevent erosion and damage to the right bank of the Chicopee River downstream of the dam and to the end of the Ludlow-Wilbraham Bridge. The owner of this dam should complete the repairs to the structure by constructing the permanent right abutment.

(d) Gauthier Lower Dam

This is a small dam located just northerly of Chapin Street at a point about half way between Miller Street and East Street. The dam forms a very small lily pond and the dam is simply an entrance to a highway culvert carrying a brook under Chapin Street. Though the dam is very small, the drainage area exceeds one square mile. This dam was found to be in a good state of repair.

(e) Gauthier Upper Dam

This dam was topped during the flood of August, 1955, and a washout extended through the dam and for a portion of the height of the structure. The washout has been repaired and the dam restored to its original condition. Extra protection against damage by future extreme flood conditions has been taken by construction of a stone wall or berm in the downstream edge of the earth fill of the dam. The dam in general is in satisfactory condition.

(f) Alden Dam

This dam, located on the brook below the outlet to the Ludlow Reservoir of the Springfield Water Works, was washed through during the flood of August, 1955. The breach still exists and no pond is formed. The owners of this structure are in the process of obtaining assistance from the Commonwealth and it is my understanding that a new dam is now being designed for construction at this location. The new dam will undoubtedly incorporate as much of the old dam as possible in the construction. No pond is now formed at the site of Alden Dam.

(g) Ludlow Park Department Dam

This dam is located off of Chapin Street in a northeasterly direction on property of the Town of Ludlow. The dam forming the pond consists of a road embankment through which a masonry conduit carries the overflow. During the flood of August, 1955, a portion of the embankment forming the dam and carrying the road was washed out. The depth of the washout was shallow and only affected storage to a slight degree. This washout has been partly repaired and the pond is at normal water level. It is recommended that the Town of Ludlow, owner of the pond and dam, be instructed to repair the dam by bringing the road to proper grade and to clean out the spillway conduit. Boulders in the spillway, and particularly in the brook at the discharge end of the spillway, reduce the carrying capacity of the overflow conduit.

(h) Ackerman Lower Dam

The Ackerman Dams are located on a small brook southeasterly of Belchertown Road and easterly of Miller Street. The



lower dam was an earth and masonry structure with a notch for a spillway. This dam was topped by the flood of August, 1955, and a large breach washed through the structure. No repairs have been made to the dam and the breach still exists in its natural state. No pond is formed at this dam.

(i) Ackerman Upper Dam

The Upper Dam is an earth and stone masonry structure impounding a small and shallow pond. No damage of consequence was done to this dam by the flood of 1955. The spillway at this dam has been in rather poor condition for a number of years. The flood waters did not damage the spillway to any extent. At the present time the spillway notch is being repaired by the use of boulders and cement grout. This repair work is normal maintenance and is not a major item. In spite of the fact that the dam is rather delapidated, the structure is safe and is satisfactory at the present time.

(j) Springfield Water Works Dam

This dam on the Ludlow Reservoir located northerly of Belchertown Road is in good condition. In the near future the spillway will probably require pointing and touching up of the masonry. At the present time the large earthen embankment and the masonry spillway are satisfactory.

(k) Reynolds Dam

This is a very small dam on Broad Brook easterly of Belchertown Road and near the Belchertown-Ludlow town line. The dam was formerly owned by Kowalzik. This is a combination earth and dry stone masonry structure. It impounds a shallow pond used for general farm purposes. The dam is quite delapidated in appearance but sound structurally from a safety viewpoint. The dam, even after the flood waters of 1955, is still in about the same condition noted over the past five to ten years. This structure is satisfactory for the present time.

(l) Ludlow Mfg. Associates Dam

This dam is on the Chicopee River near the center of Ludlow. The dam, gate structure, and abutment areas are all in good condition.

(m) Western Mass. Electric Co. Dam

This dam is on the Chicopee River between Indian Orchard and Ludlow just upstream from West Street. The structure is a stone masonry dam. The dam, gate facilities, and abutments are in good condition.

(n) Burella Dam (now Meunier)

This dam was located on Fuller Brook just westerly of West Street. The main dam at this site was washed out many years ago. The present owner began reconstruction of dam facilities at this location. No major progress had been made when the flood of August, 1955, washed out the entire area. No pond was formed prior to the flood of 1955 and no pond has formed at the present time.

(o) Block Dam ( now Rozkuszka)

This dam is located on Higher Brook just upstream of Holyoke Street. The dam is a masonry structure that had recently been repaired and prior to the flood of 1955 was in very good condition. The flood waters washed out the earth behind the right abutment. The dam itself was not damaged by the flood. The earth washout has since been repaired in connection with flood damage repairs to the highway culvert on Holyoke Street. The earth fill has been further strengthened by the installation of many tons of riprap and the widening of the earth and rock mass. The drawdown pipe through the dam has been extended. This dam is in good condition.

(p) Carver Dam

This dam is located in the northwesterly corner of Ludlow on Stony Brook. It is a dry stone masonry structure and during the flood of August, 1955, the water washed around the right end of the dam. The dam itself remains in its original condition but the flow of the brook now passes around the dam through the new channel. No pond of consequence is formed and in time of flood no major ponding that would be dangerous to persons and property downstream would occur. To protect the highway culvert immediately below the dam it might be necessary in the future to return the dam to its original course over the masonry dam or to do protective work to prevent erosion at the highway culvert.

Of the sixteen dams located in the Town of Ludlow, four were seriously damaged by the flood of 1955. Of these, three still remain unrepaired and one, the Wilbraham Paper Co. Dam, has been only temporarily repaired.

Very truly yours,

George H. McDonnell  
County Hydraulic Engineer

GHM/f

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
**BOWERS AND PEQUOT STREETS**  
**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**  
**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

CD Ludlow

Oct. 31, 1957

The Hon. the Board of County Commissioners  
Hampden Coutny Court House  
Springfield, Mass.

Gentlemen:

Recent inspections of dams in the Town of Ludlow has completed the inspection routine in that community and all of the dams coming under County jurisdiction have been examined one or more times during 1957. The following is a report on the condition of the various dams in the Town of Ludlow.

**A. Newcomb Dam**

This dam has recently been rebuilt. The central portion of this dam was washed thru in the flood of August, 1955. The undersigned met with the owner during this year and provided the owner with information and advice regarding the reconstruction of the dam. Though this dam impounded less than 1,000,000 gallons of water and the drainage area is extremely small, the structure was inspected annually since the height of the dam was just under 10 feet. In rebuilding the dam, the owner decided to maintain a height of less than 10 feet and consequently plans and specifications of the proposed reconstruction were not filed.

The rebuilt dam is about the same as prior to the 1955 flood. The embankment section is somewhat larger and the spillway has been improved. Though the structure does not come under County jurisdiction, since it is a borderline case, the dam will be inspected annually and included in the reports to be certain that the structure is not enlarged to result in its height being increased to above 10 feet and the structure thus coming under County jurisdiction. The condition of the dam was found to be satisfactory.

B. Ludlow Mfg. Associates Dam (Red Bridge)

This dam located on the Chicopee River at the Wilbraham Town line, was found to be in relatively good condition. There is certain maintenance work that should be done in the near future and this consists of cutting and removing brush and tree growth from the earth embankment as well as the repair of the small gully being formed in the embankment on the downstream face just south of the south abutment. The stone masonry of the spillway section should be repaired by jointing and pointing all stone blocks where mortar has been washed out.

The dike located adjacent to Alden Street was found to be in good condition.

C. Collins Dam (Wilbraham Paper Co.)

This dam is located across the Chicopee River between Wilbraham and Ludlow. The name of the company now owning the plant as well as the dam is the Alchar Wilbraham Corporation with offices at Cottage Street, No. Wilbraham, Mass. Permanent improvements and repairs to the right abutment area at this dam have never been completed. Following the flood of August, 1955, temporary repairs were done at the right abutment area by the County in order to protect the highway bridge located immediately downstream. The owner of the dam had agreed to make permanent repairs and filed plans and specifications of this proposed work. When last inspected on October 28, 1957, no permanent repairs had been made. The northerly abutment area had been improved by the addition of a relatively large volume of granular soil excavated from a nearby highway reconstruction project. This soil gives the appearance of mass and strength to the abutment area. However, during heavy storm runoff or overflowing water from the river itself, this fill at the right abutment would rapidly be washed away. The surface area is not properly drained to prevent erosion by local runoff. This erosion can weaken the abutment area fill.

The sandbag protection placed along the shoreline upstream of the abutment is now of little value. The cloth of the bags have deteriorated and the fill of the abutment area is exposed to the forces of flood water. This area of the river bank should be heavily riprapped to prevent flood flows from eating into and washing away the sandy soil.

The permanent repairs for this abutment area provided for a steel sheet cut-off wall with heavy rock fill on both sides of the sheeting. The grade of the rock fill was such that in time of extreme flood this section of the abutment area could act as an emergency overflow and thus aid in preventing the overtopping of the earth dike located on the opposite side of the River.



I. Ackerman Upper Dam

This dam is in the same general condition reported in previous years. The structure is somewhat dilapidated but safe. The spillway is satisfactory and is of the type of construction that can withstand a very high rate of overflow without danger of sudden failure.

J. Springfield Water Works Dam

Leakage thru the masonry of the gatehouse substructure and at the left abutment appears to be on the increase and steps should be taken in the near future to correct this condition.

The embankment of the dam and the downstream stone paving of the embankment are satisfactory.

K. Reynolds Dam

This dam is in the same general condition as reported during the past years. The structure is quite dilapidated but the head is low and the quantity of water stored is small. Both the main and the side spillways are functioning and are in a satisfactory condition.

L. Ludlow Mfg. Associates Dam

This dam situated in the central part of Ludlow adjacent to the bridge between Ludlow and Indian Orchard was found to be in satisfactory condition. Weathering of concrete and spalling of the concrete masonry is no worse this year than in the past. Consequently, it is not necessary for the owner to take any action in connection with repairs at this time.

M. Western Mass. Electric Co. Dam

This dam was found to be in good condition. The right abutment has been improved by construction of a massive concrete wall to retain high river flows and to prevent water from scouring the right bank of the Chicopee River behind the right abutment. This wall is backed up in part by new earth backfill.

N. Burella Dam (Now Meunier)

This structure is still breached and a free waterway exists for the passage of stream flows.

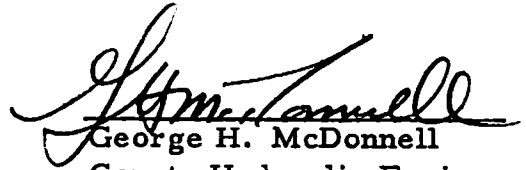
O. Block Dam (Now Rozkuszka)

This dam was found to be in satisfactory condition. At the time of the last inspection, the spillway was passing a fairly high rate of overflow. The spillway seemed to be somewhat rough but this condition has always existed to a certain extent. Conditions at the dam are satisfactory.

P. Carver Dam

This dam is still breached at the right end as the result of the flood of August, 1955. Hardly any water is ponded and the breach is sufficiently wide to pass flood flows.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

Further, it is most probable that the timber plank bed which supports the thin concrete spillway bottom has been thoroughly rotted by at least two years wetting and drying, thus creating a well defined seepage plane difficult to shut off by grouting.

Driving a sheet pile cut-off would not be possible at this site since, as noted above, the area is extremely bouldery."

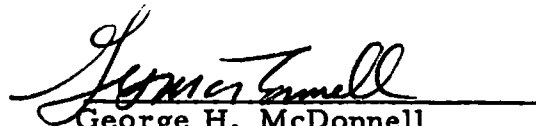
Since the concrete spillway is built on a timber crib type of foundation, and since this pond has not stored water in about 2-1/2 years, it can be readily seen that the condition of these various timbers must be poor as a result of deterioration. Had the pond remained full of water and normal conditions prevailed, the timber foundation probably would still be as good as it was prior to the flood.

At the conference held on the site on January 8, 1958, it was agreed by all present that the spillway should be removed and replaced.

This matter is now under consideration by the various state authorities such as the Division of Waterways and the Flood Relief Board representative. It can be assumed that a decision will be reached shortly and proper action taken to correct the condition at the Alden Pond spillway.

The above information is submitted to you for your file purposes and to inform you of the status of the repair work on the Alden Pond dam.

Very truly yours,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

CD Ludlow

Dec. 4, 1958

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspections of dams in the Town of Ludlow have completed the inspection routine in that community and all dams have been examined one or more times during 1958. The following is a report on the condition of the various dams in the Town of Ludlow.

A. Newcomb Dam

The dam embankment has been improved and general conditions are satisfactory. The embankment elevation is now such that the lowest point is at the left end of the dam. Thus, should extreme runoff conditions occur that exceed spillway capacity, any overflow of water will pass around the left of the dam on natural ground. This will prevent any sudden release of the small pond created by this dam. Conditions at the dam and spillway were found to be satisfactory.

B. Red Bridge Dam (Now Western Mass. Electric Co.)

The dike at Alden Street was found to be in satisfactory condition.

Brush and trees on the main dam embankment should be cut down. A gully in the earth of the embankment at the left spillway abutment wall on the downstream face of the embankment should be repaired.

C. Collins Dam (Alchar Wilbraham Corp.)

Riprap has been placed along the river bank at the right abutment. Additional riprap is still needed upstream of where riprap is now in place but no additional riprap should be placed out into the river itself



in the vicinity of the dam. Riprap now at this particular location extends as far as it should into the river.

The granular fill of the right abutment area should be properly drained to protect the fill from surface runoff and the formation of gullies. Gullies now existing should be properly filled and graded.

All flashboards are off of the dam and the canal spillway. These flashboards should remain off until such time as the right abutment is permanently and properly repaired.

The permanent steel sheeting together with the heavy stone backfill originally planned for the right abutment should be installed. This work should be done in the very near future.

D. Gauthier Lower Dam

This little dam is nothing more than an inlet to a culvert under Chapin Street. Sand bags noted last year to correct an erosion problem are gone and this small structure has been repaired. At the present time, it is in very good condition.

E. Gauthier Upper Dam

Conditions at this dam were found to be satisfactory.

F. Alden Dam

Work at this dam is still incomplete. The embankment and conduit seem to be satisfactory. As reported previously, this dam was being repaired as a flood project and following the reconstruction of the embankment it was discovered that the spillway needed replacement.

The spillway reconstruction has not as yet been started and to my knowledge, no final plans of the proposed construction have as yet been filed for review and approval. At the present time, water flows thru the spillway area over broken concrete and temporarily placed boulders. Very little water is ponded and the free flow of the brook passes thru the destroyed spillway. Though this arrangement is temporary, it seems satisfactory for the winter and coming spring season.

G. Ludlow Park Department Dam

This dam was found to be in satisfactory condition.

H. Ackerman Lower Dam

This dam is still breached as the result of the flood of August, 1955, and a wide free waterway exists for the passage of storm flows.

There are no flashboards on this dam. None should be allowed on the dam until permanent repairs are made to the structure. Existing flashboards on the canal overflow spillway should also be removed.

The stone masonry on the face of the dam at the south 1/3 of the structure needs repair, replacement of missing stones and the making of new mortar joints.

There is a considerable amount of leakage taking place under the south abutment area and this leakage should be investigated and repaired.

It is recommended that the owner of the dam be directed to make all of the necessary permanent repairs to this dam within the next 12 months or the dam should be breached and a sufficient amount of the structure be removed to prevent its ponding of water under any condition of river flow. In the meantime, it is recommended that the owner immediately remove the remaining flashboards from the canal spillway and place a protective layer of riprap along the bank of the river upstream of the right abutment.

D. Gauthier Lower Dam

This is a small structure located just northerly of Chapin Street. The dam forms a small pond for private recreational purposes. It is simply an entrance to the culvert carrying surface runoff under Chapin Street. The dam is very small and is in relatively good condition. A ring of sandbags in front of the dam apparently controls a small erosion problem. This condition will be observed from time to time to see that the culvert under Chapin Street is not endangered by the small dam.

E. Gauthier Upper Dam

This is a small earth embankment with a tube spillway that forms a relatively large pond used for private recreational purposes. When last inspected, the dam and spillway were found to be in satisfactory condition. Some lumber and debris was removed from in front of the spillway at the last inspection.

F. Alden Dam

This dam forms Alden Pond and is located easterly of Alden Street. The dam was breached in the flood of August, 1955 and at the time of the last inspection, construction work was proceeding slowly with the rebuilding of the dam. The dam is being reconstructed as a flood project. Plans and specifications of the new construction have been filed with your Board. Inspections are made frequently during the construction work. Conditions at this dam were satisfactory when last inspected. The dam will probably be completed prior to the coming of freezing winter weather.

G. Ludlow Park Department Dam

This is a very low dam forming a fairly large pond used for fishing purposes. The spillway is a conduit under the road that forms the low dam embankment. When last inspected, the conduit was partly plugged with boulders and miscellaneous debris. The conduit should be cleaned and the brook course immediately downstream of the lower end of the conduit cleared.

H. Ackerman Lower Dam

This dam was breached in the August, 1955 flood. The structure is still breached and there is an ample opening for the passage of flood flows.

I. Ackerman Upper Dam

This dam is in somewhat dilapidated condition but the structure is not dangerous. The dam itself is an embankment built up with heavy boulders and is the type of a structure that would not wash out suddenly but would wear away slowly and thus prevent the sudden release of stored water. The dam and spillway are in satisfactory condition considering all factors involved.

J. Springfield Water Works Dam

The earth embankment section of this structure is in good condition. The downstream face rock paving is satisfactory in all respects. At the spillway, the stone masonry on the left abutment at the upstream side of the structure will need maintenance and attention within a year or so. This condition will be observed in 1958 and if it has grown worse, repairs will be recommended.

K. Reynolds Dam

This dam is in the same general condition as noted in recent years. Though quite dilapidated in appearance, the structure is relatively sound from a safety viewpoint. The dam is formed mainly with heavy field and miscellaneous stones. The dam is the type that will not wash out suddenly though it looks in poor condition. The structure is satisfactory for the present time.

L. Ludlow Mfg. Associates Dam

This dam, situated on the Chicopee River near the center of Ludlow, was found to be in very good condition. Some weathering of the concrete has taken place on the spillway and at the right abutment. However, this weathering action is minor and no maintenance or repair work is needed at this time.

M. Western Mass. Electric Co. Dam

This dan, located on the Chicopee River between Indian Orchard and Ludlow, was found to be in very good condition.

N. Burella Dam (now Meunier)

This dam no longer exists, having been washed out many years ago. Reconstruction work started prior to 1955 was again washed out in the flood of August of that year. Since then, no further work has been done at this site. This site is inspected annually to be certain that no structure is built without first filing approved plans and specifications.

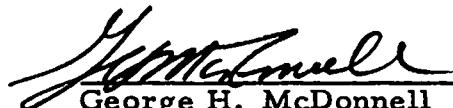
O. Block Dam (now Rozkuszka)

This is a masonry structure on Higher Brook just upstream from Holyoke Street. When last inspected, this dam was found to be in very good condition.

P. Carver Dam

This is a dry stone masonry structure on Stony Brook located near the Granby Town line. The structure is still breached around its right abutment and no pond is formed. The breach is sufficiently wide to pass flood flows. The old Wooden Mill connected with this dam has been torn down.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

CD Ludlow

Oct. 22, 1959

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspections of dams situated in the Town of Ludlow has completed the inspection routine in that Community and all of the dams coming under County jurisdiction have been examined one or more times during the year 1959. The following is a report on the condition of the various dams situated in Ludlow.

A. Newcomb Dam

This dam was found to be in satisfactory condition. Field stones have been added to the downstream face of the earth embankment. This has improved the safety of the structure. The dam is small and the pond formed is not large. A fine screen was noted in the spillway and this screen was plugged with leaves and debris. The screen was removed by the undersigned to allow for free flow. Conditions in general, at the dam and spillway, were satisfactory.

B. Ludlow Mfg. Associates Dam (Red Bridge) (Now Western Mass. Electric)

The earth embankment at this dam was found to be in very good condition. Repairs and maintenance as recommended in 1958 have been satisfactorily completed. The stone masonry spillway is in good condition.

The dike located adjacent to Alden Street was found to be in satisfactory condition.

C. Collins Dam (Wilbraham Paper Co.)

No flashboards have been noted on this dam during many inspections throughout 1959. The right embankment area has been improved by the placing of additional riprap on the face towards the river and upstream of the dam itself. A small dike of the seeded earth has been



built on and along the water's edge of the right abutment apparently for the purpose of keeping flood flows from over topping the abutment area and for better control of surface runoff. The fill of the right abutment is still the sand fill that was placed as a temporary repair following the flood of August, 1955. The steel sheet core wall has never been set in place as planned and the heavy stone fill downstream of the sheeting location remains to be placed.

The abutment area to the right of the dam has been surface drained fairly well. The owner should be cautioned not to raise the right abutment area any higher. In fact, the right abutment area should be kept at a grade lower than the dike on the south side of the river. Any flood flows greater in height than the elevation of the south dike should be directed over the right abutment rather than thru the residential area and the mill yard situated to the south of the Chicopee River.

D. Gauthier Lower Dam

This is a very small structure just northerly of Chapin Street that was built for aesthetic purposes. When last inspected, it was in satisfactory condition.

E. Gauthier Upper Dam

The spillway and embankment at this dam are in satisfactory condition. The embankment has been well paved with local field stones on both faces. The embankment should be able to withstand major flood runoffs.

F. Alden Dam

This dam is still under construction as the result of flood damage in August, 1955. The earth embankment has been rebuilt under the direction of the Massachusetts Division of Waterways. A separate contract was recently awarded for the construction of the new masonry spillway. This spillway construction has been inspected from time to time during the past two weeks. No particular progress has been noted on the construction work during the past ten days. On the date of the last inspection, October 21, 1959, the contractor was working on the foundation for the upstream spillway wall. The excavation is within 2 ft. of grade and is in a material that could be classed a glacial till. The contractor was warned that as he approached foundation grade, he should keep the excavation dry. Otherwise, working in a wet foundation could result in poor soft soil under the concrete.

G. Ludlow Park Department Dam

The spillway box and inlet were found to be in satisfactory condition. The earth dam constituting the roadway should be repaired at the spillway area where a small gulley has been formed. The gulley should be filled with compacted gravel.

H. Ackerman Lower Dam

This dam is still breached as the result of the flood of August, 1955. No water is ponded.

I. Ackerman Upper Dam

This dam is in the same general condition as noted in previous years. The structure is dilapidated but it only stores a small quantity of water. The spillway is in satisfactory condition and shows little or no sign of erosion over the years. Considering all factors involved, the dam and spillway are in satisfactory condition.

J. Springfield Water Works Dam

Tree and brush growth on the earth embankment and in the stone riprap area should be cut down. The spillway was found to be in satisfactory condition. Some leakage was noted thru a joint of the stone masonry at the gate structure as well as thru the left abutment area. This leakage is not of a serious nature and has been noticed in the past. A new gate operating platform has been constructed. Gate operating hand wheels and worms are accessible from the top of this open platform.

K. Reynolds Dam

This dam is in the same general condition as reported for many years. It is a small dam ponding a small and shallow body of water. Though dilapidated, the structure is not dangerous to persons and property downstream.

L. Ludlow Mfg. Associates Dam

The concrete of the spillway is in satisfactory condition. Spalling noticed in the past has become no worse. Maintenance and repairs to masonry at the right abutment area and at the gate headworks has been accomplished during the year. This dam is in satisfactory condition.

M. Western Mass. Electric Co. Dam

Brush and vegetation growing from the dam, abutments and the canal spillway should be discouraged and the brush itself cut. Brush growth

could cause damage to masonry and require unnecessary maintenance in the future. The dam itself is in good condition.

At the right abutment area, surface water runoff has washed out fill behind the new concrete wall. This is not a dangerous condition. However, the owners may wish to correct the erosion problem with proper surface water control.

N. Burelia Dam (now Meunier)

This structure is still breached. The dam was washed out many years ago. The breach is the full width of the stream and flood flows can pass the area without ponding water.

O. Block Dam

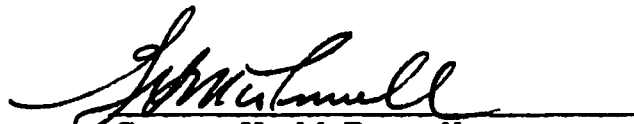
The dam and spillway are in satisfactory condition. Some erosion is noted at the grouted riprap in the vicinity of the toe of the dam. This condition is not serious.

Riprap downstream at the end of the westerly abutment at the roadway culvert has been washed out to some extent by heavy runoff of surface water from the street downstream of the dam. As conditions now exist, the small washout does not affect the dam. If future storms extend the washed out area towards the dam, recommendations for repairs will be made. At the present time, the problem is one of highway maintenance rather than a dam problem.

P. Carver Dam

This structure is still breached at the right abutment area as the result of the flood of August, 1955. No water is ponded and conditions are satisfactory.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Ludlow  
Nov. 22, 1960

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections recently conducted throughout the Town of Ludlow have now completed the inspection routine in that community and all dams coming under County jurisdiction have been examined one or more times during the year 1960. The following is a report on the condition of the various dams located within Ludlow.

A. Newcomb Dam

This dam was found to be in satisfactory condition. The embankment appears to have been widened and slightly raised, thus providing more strength and higher free-board. The spillway structure itself is in poor condition but is satisfactory from a safety viewpoint. A screen was found in the spillway slot but was well plugged with leaves and debris. However, the screen was about ready to fail because of the hydraulic load built up as the result of the debris plugging the screen openings. Failure of the screen will provide a greater overflow capacity and thus more safety for the dam. The dam is satisfactory as of the present time.

B. Ludlow Mfg Associates Dam (Red Bridge) (Now Western Mass. Elec.)

This dam is in satisfactory condition. The embankment is well shaped and contains a good growth of sod. Brush growth has been kept cut during the present year. The spillway is in satisfactory condition.

The dike, located adjacent to Alden Street, was found to be well shaped and in satisfactory condition.

C. Collins Dam (Alchar-Wilbraham Corp.)

No flashboards were noted on this dam at the time of the

last inspection. The spillway was in satisfactory condition. The right abutment area was in the same general condition as reported a year ago, except that more stone paving may have been added to the river bank and the abutment area. The right abutment area appears to be higher than the top of the left bank dike on the Wilbraham side of the river. This determination was made with a hand level. The right abutment at the dam should be such that any overflow of abutment areas will take place here rather than at the dike on the Wilbraham side. The Owner should be advised to check the grade of the right abutment and be certain that a channel is provided for the passage of large flood flows over the right abutment rather than over the dike at the left side of the dam. The right abutment is now so drained and protected that no erosion is taking place.

D. Gauthier Lower Dam

This small structure was found to be in satisfactory condition. It is nothing more than an inlet structure to a drainage culvert under Chapin Street.

E. Gauthier Upper Dam

The embankment of this dam is in good condition. Stone paving on the slopes is OK and the spillway was found to be free and clear of any debris. The Owner pointed out to the undersigned that he plans further improvements to the left downstream face of the embankment by forming a timber crib wall to act as an emergency swale overflow in time of extreme storm runoff conditions. This will increase the safety of the dam.

F. Alden Dam

This dam is under reconstruction as a State Dept. of Public Works, Div. of Waterways project, resulting from the flood of August 1955. The earth embankment was completed under a previous contract and a new spillway is now being built. Inspections are being made on a weekly basis and at the time of the last inspection on Monday, Nov. 21, 1960, the spillway wingwalls were being formed and prepared for pouring. The Division of Waterways maintains a project engineer on the job during the various work days and he sees that the work is carried out in accordance with the plans and specifications. Work is progressing satisfactorily.



G. Ludlow Park Dept. Dam

The embankment of this dam is in satisfactory condition. A gully washed thru the road area has been repaired. The spillway entrance and the conduit are both in satisfactory condition. The spillway capacity at this dam should be increased to be able to pass anticipated rates of runoff that will result from the rapidly developing drainage area upstream.

H. Ackerman Lower Dam

This dam was breached in the flood of August 1955 and conditions remain unchanged. The breach is wide and deep. It can pass flood flows without storing water.

I. Ackerman Upper Dam

This small dam was found to be in better condition than noted in previous years. The embankment has been brushed and the old stone masonry spillway has been grouted and paved. The embankment was found to be in good condition.

J. Springfield Water Works Dam

The dam is in very good condition. The embankment is well shaped and has been cleared of all brush and tree growth as previously recommended. Only one small pine tree now grows from the downstream face of the long earth embankment. The riprap face is in good condition.

The spillway was found to be satisfactory. Leakage still occurs between certain stone blocks of the spillway structure. However, this leakage is not serious and conditions at the spillway are satisfactory.

K. Reynolds Dam

This dam is still quite dilapidated but is in safe condition. The pond stored is shallow. The spillway was in better condition than noted in previous years. The embankment and the masonry walls are OK.

L. Ludlow Mfg Associates Dam (Now Western Mass. Electric)

The abutment areas were found to be in good condition. The dam itself shows a considerable amount of spalling on the surface of the overflow section. This spalling and related

erosion is not serious enough to require repairs as yet. The existing condition can continue for some time into the future. When repairs are advisable, they will be recommended. The dam as now existing is satisfactory for the present time.

M. Western Mass. Electric Co. Dam

The abutments and the dam itself were found to be in satisfactory condition. However, brush was noted to be growing from the stone masonry of the dam and from the left abutment, as well as from the canal spillway. This brush growth should be discouraged and removed. Continuation of brush growth from the joints of the masonry can eventually result in damage to the stone masonry and the need for more expensive maintenance at some later date.

At the right abutment earth has been placed behind the new concrete wall and the erosion problem noted in the annual inspection report of 1959 has been corrected.

N. Burelia Dam (Now Meunier)

This dam is still breached. The breach is wide enough to pass flood flows. It would appear as if the Owner does not plan any reconstruction of the dam. Both the original dam and the smaller downstream unit, built about 10 years ago, are completely breached and all evidence about washed away. In all probability, inspections at this site can be eliminated in the near future.

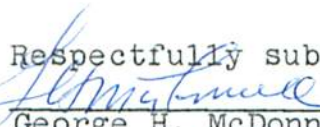
O. Block Dam (Now Rozkuszka)

The erosion of the stone riprap on the spillway has become no worse and consequently the spillway condition is satisfactory. Surface runoff from the street located immediately downstream of the dam has been controlled by the construction of type I paved gutters and waterways. All signs of wash at abutment areas have been eliminated and soil stabilized.

P. Carver Dam

This dam is still breached as a result of the flood of August 1955. The breach is at the right abutment and it is wide enough to pass storm flows.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

*CONSULTING ENGINEERS*

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Ludlow  
Feb. 12, 1963

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections have been completed within the Town of Ludlow on the dams situated within that community. All dams in Ludlow have been examined at least once during the past year and the following is a report on the general condition of each of the dams.

A. Newcomb Dam

This structure was in the same general condition as reported a year ago. The embankment was found to be satisfactorily shaped and quite stable. It is fairly wide for its height. The spillway chute was in satisfactory condition. The spillway was functioning and water level was at the crest of the spillway when the dam was checked. This structure was deemed safe.

B. Ludlow Mfg Associates Dam (Red Bridge) (Now Western Mass. Electric)

The earth embankment at this dam was found to be in satisfactory condition. It is well shaped and a well maintained structure. The spillway masonry was in very good condition. The toe area of the dam was found to be good.

The dike, situated not too far distant from Alden Street, was found to be in very good condition. It is well shaped and maintained.

C. Collins Dam (Alchar-Wilbraham Corp.)

This dam was inspected many times during 1962. At each inspection the water overflowing the spillway was sufficient in quantity to prevent a thorough inspection of the downstream toe and the foundation area of the canal spillway at the left of the dam. Flashboards have been on the dam throughout the year in accordance with the special permission granted by the County. The right embankment area was



found to be in satisfactory condition. The channel has been excavated behind the right embankment to provide for an emergency flood flow and the swale spillway was found to be OK. Stone riprap at the right abutment was in good condition.

During the Summer of 1963, inspections will be made during low water time to try and get an inspection of the toe and to have access to the river bed just downstream of the dam. Based on conditions noted from time to time in 1962, it is the opinion of the undersigned that the dam is safe.

D. Gauthier Lower Dam

This small structure is in the same condition it has been for many years. It is nothing more than the inlet to the road culvert carrying the brook under Chapin Street.

E. Gauthier Upper Dam

The embankment of this dam was found to be in good condition. It is well shaped and the cobblestone paving is well maintained. Both spillway pipes were found to be free and clear of any debris and were operating satisfactorily.

F. Alden Dam

The embankment at this dam was found to be in very good condition. No seepage was noted at the right toe. The masonry of the spillway and the spillway abutment areas were in excellent condition. The downstream apron of concrete and stone paving was found to be OK. No erosion is taking place. At the time of the last inspection, the flashboards were off of the crest of the masonry spillway and the pond was down to the normal Winter level.

G. Ludlow Park Dept. Dam (Now Ludlow School Dept.)

At the time of the last inspection it appeared as if all work at this dam as relates to the new school construction has been completed. The temporary drawdown facility has been removed at the old dam. Originally the dam consisted of a narrow and not very high gravel embankment used as a roadway. A small and relatively short spillway section passed thru and under the embankment construction. The spillway facility has been extended for quite a distance with a corrugated iron tube of about 4 ft. in diameter. The entire area at

the original dam and for some distance downstream has been filled and graded. Thus, the dam is now very wide for its low height. No stoplogs were in the inlet structure at the time of the last inspection and the pond was being kept at a low elevation. The flow of the stream was passing thru the small pond, into the inlet end of the spillway facility and thence thru the long corrugated iron tube to be discharged into the brook course. In the opinion of the undersigned, the capacity of the spillway is too small to prevent overtopping of the newly placed earth fill in time of extreme storm runoff conditions. At some time in the not too distant future, it can be expected that runoff will be sufficient to exceed the capacity of the single long spillway tube, to overflow the newly graded area and as a result, much of the earth fill will be washed away. Since the athletic area is on the opposite side of the spillway from the new school construction, it can be expected that any such washout will separate the athletic area from the school construction until damage is repaired.

It would be well to advise the School Dept. that the capacity of the spillway at this structure as now existing, is not adequate to safely pass anticipated flood flows and that the School Dept. should expect damage done to the newly placed fill and the area immediately adjacent thereto when such an overflow takes place. To prevent damage to this new construction would necessitate a spillway with a capacity considerably greater than that of the present extended spillway tube. Another means for preventing damage to the newly placed fill and the new finish grade would be the paving of a wide area with suitable material to safely pass flood flows over the surface when they exceed the tube capacity.

H. Ackerman Lower Dam

This dam was breached in the flood of August 1955 and no repairs have been done. The breach is wide and deep and flood flows of the stream can safely pass the site of the old dam.

I. Ackerman Upper Dam

This dam was found to be in satisfactory condition. The old embankment is in satisfactory shape and though the spillway is poor, it has been fairly well maintained and in the opinion of the undersigned is adequate for the structure. At the time of the last inspection, the dam was deemed safe.



J. Springfield Water Works Dam

Conditions at this dam were in general the same as reported in previous years. The embankment was found to be in good condition and well maintained. The spillway masonry is in need of minor maintenance but this is not a serious matter. In the opinion of the undersigned, the dam was satisfactory when checked.

K. Reynolds Dam

This dam is quite dilapidated and has been in this condition for many years. However, it is low in height and impounds a small quantity of water. Though poorly maintained, in the opinion of the undersigned, it is safe.

L. Ludlow Mfg Associates Dam (Now Western Mass. Electric)

This dam was found to be in good condition. The erosion of the masonry is no worse than reported previously and the abutment areas were very good. The canal headgate structure was found to be in good condition.

M. Western Mass. Electric Co. Dam

At the time of the last inspection a heavy ice cover was on the spillway and the dam itself. Thus, it was difficult to see the masonry and make a proper inspection. What could be observed was found to be OK. The abutment at the right of the dam was good. Both the earth fill and the masonry were in excellent condition. At the left abutment area, the canal spillway was satisfactory. The portion of the stone work weathered away could not be observed because of the ice and the inability of the undersigned to get to that part of the riverbed below the dam. This will be checked during the Summer of 1963. Some small brush growth still takes place from the joints in the masonry but it is not serious. In general, this dam is well maintained.

N. Burelia Dam (Now Meunier)

This dam has been breached for many years and there is no indication that it will be rebuilt. A replacement would necessitate a major expenditure. In the opinion of the undersigned, it is no longer necessary to carry this dam on the inspection report and no inspection has been made since early 1962. No further inspections will be made on an annual routine basis.

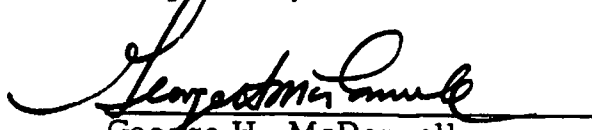
O. Block Dam (Now Rozkuszka)

This dam is becoming more dilapidated but it is not in an unsafe condition. The paved riprap face is becoming more eroded and in the not too distant future it may require the placing of some concrete. Seepage is no worse than has been noted in the past at the masonry gate unit. No fine earth has ever been noted moving with the seeping water. The dam was considered safe when inspected.

P. Carver Dam

This dam was breached in the flood of August 1955 around the right end and the breach has never been repaired. The breach is sufficiently wide to satisfactorily pass flood flows.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# *TIGHE & BOND*

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Ludlow  
August 18, 1970

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

All of the dams located within the Town of Ludlow have been inspected at least once during the year 1970. The following is a report on the general condition noted at each of the dams in Ludlow.

A. Ludlow Mfg. Associates Dam (Red Bridge-now Western Mass. Elec.)

The earth embankment was noted to be in reasonably good condition. Brush growth is beginning to develop again, particularly on the downstream slope, and, if the brush is not removed by the time of the next inspection, the owner should be advised to cut all brush growth and to develop a good turf cover over the entire embankment.

The erosion on the downstream slope of the embankment at the spillway left abutment wall was no worse than observed in previous years. The erosion is the result of foot traffic. A protective fence has been constructed parallel to the left abutment wall and the eroded area is parallel to and just adjacent to the fence. The surface of the slope of the embankment on the water side is satisfactory. The settled stone paving shows no further evidence of any movement.

The toe area was in good condition. The toe was dry. The rock fill portion of the toe was o.k.

The stone masonry of the spillway was noted to be in good condition. The joints of the stone masonry were satisfactory. The abutment masonry was o.k.

# **TIGHE & BOND CONSULTING ENGINEERS**

The crest of the spillway was on good grade and alignment. There were no flashboards on the spillway crest and water level in storage was about two feet below crest elevation.

The right abutment masonry and the toe flood training wall were noted to be o.k.

In the opinion of the undersigned, this dam is safe.

## **B. Collins Dam (Wilbraham Industrial Park)**

This dam is deteriorating and it receives no maintenance whatsoever. On the day of inspection water was flowing thru the canal headworks unhindered in any way since all of the gates have been removed from the canal gate structure. Directly in front of the right side of the old gate facility and in the canal, water was observed to be quite turbulent. This is a result of the free flowing water entering the canal and then coming in contact with an underwater stone masonry obstacle that apparently is a part of the canal spillway structure. The turbulence in the water is not related to any leakage from the pond.

The canal overflow is deteriorating badly. Water level was below crest elevation.

The left abutment earth dike was observed to be o.k. and it has a fairly good turf cover.

The dam itself was noted to be in fair condition insofar as stone masonry and the crest of the dam are concerned. The crest was on good grade and alignment. Flashboards were on the crest but water in storage was about at the elevation of the base of the flashboards. Very little water overflowed the spillway that extends across Chicopee River. Many of the timbers at the toe of the dam have been displaced and washed away. Consequently, water overflowing the dam spillway can now undermine the toe of the dam.

The toe of the dam is inundated with ponded water held back by a downstream curb wall that was part of the toe timber system. The heavy toe timbers will continue to fail and wash away and will become a nuisance if not a danger and threat downstream.

It was not possible to determine whether or not the toe of the dam is being washed out and undermined. The owner should be required to investigate the conditions at the toe of the dam and if undermining

and water erosion is taking place, the toe should be stabilized by either repairing the timber toe facility or placing mass concrete at the toe to prevent a continuation of any possible erosion.

An examination of a portion of the toe of the dam and the curb as well as those sill timbers that could be viewed indicated that they were in fairly good condition.

The right abutment masonry structure was satisfactory. The flood flow swale behind the right abutment was o.k. Many small trees are growing in the swale but these do not affect its ability to function as yet.

It is recommended that the owner of the dam be advised to maintain the dam, particularly the toe area, and to investigate conditions at the toe and take any corrective action needed to prevent undermining of the toe.

C. Gauthier Dam

This dam was inspected in the presence of the owner. The dam was found to be in fairly good condition. The embankment was o.k. The downstream face of the embankment is well protected with a field-stone and cobblestone paving. The toe area of the embankment was dry and there was no sign of erosion anywhere on the embankment.

The roadway across the top of the embankment was o.k. and there was no settlement or cracking observed.

Spillway tubes were observed to be satisfactory. The small tube was in poor condition but it is functional. The main concrete tube was o.k. and in good condition.

Tree growth is occurring on the slope of the embankment toward the pond but the growth is not as yet large enough to be of any concern.

In the opinion of the undersigned, the dam is safe.

D. Alden Dam

The stone paving on the water side slope of the embankment was noted to be satisfactory. There is some brush growth occurring from this portion of the embankment but as yet it is not thick enough to require cutting.

The concrete of the gate structure was o.k. No cracks were observed. The gate operating mechanism appeared to be functional. Foundation bolts were tight. The access bridge leading out to the gate operating facility was in good condition.

The abutment wingwalls located upstream of the spillway have moved down and out slightly as previously reported. There does not appear to have been much motion of these wingwalls during the past year. The opening at the construction joint is about the same as noted previously.

The earth embankment should be raised with compacted earth to return the top of the embankment to a grade equal to the top of the spillway masonry sidewalls.

The spillway was in satisfactory condition. Stoplogs were on the crest. Most sections contained the usual four stoplogs. However, three sections have had the top board removed and water level in storage was being controlled by the elevation of the stoplogs in these three sections.

Concrete of the spillway was in good condition. The apron was o.k. and the toe wall was also noted to be satisfactory. The erosion control riprap at the downstream toe of the spillway in the bed of the stream was o.k.

The downstream slope of the embankment was in satisfactory condition. Turf cover is poor since most of the growth on the surface of the embankment consists of miscellaneous weeds. The toe area was in normal condition. Toe water showed little evidence of any motion.

In the opinion of the undersigned, the dam is safe but the owner should be advised again of the need of raising the earth embankment so that the grade of the top of the earth will be equal to the grade of the concrete right masonry sidewall of the spillway if the work is not done in a year or two.

E. Ackerman Upper Dam

The pond formed by this dam is quite low. It is down more than two feet below spillway crest elevation and the remaining water is nothing more than a large puddle that probably does not contain 1/3 of the capacity of the pond when full to spillway crest elevation. Water was



being taken from the pond with a plastic hose. This, together with seepage thru the stone masonry section of the spillway may be the reason for the amount of water in storage being so low. It would appear that the owner has attempted to control seepage thru the dry stone masonry section of the dam by placing gravel on the upstream face.

The spillway was observed to be in satisfactory condition. The dam embankment itself is rather dilapidated but is serviceable. The toe area was observed to be dry and the brook bed immediately downstream from the spillway was also dry.

The small stone filled side spillways along the left shore of the pond area were in satisfactory and functional condition.

Though the dam is somewhat dilapidated and receives little attention or maintenance, it is the opinion of the undersigned that it is safe.

**F. Springfield Water Works Dam**

The embankment of this dam is in need of maintenance and attention. All of the brush growth on the embankment should be cut down. Brush growth on the sloping surface toward the reservoir as well as on the downstream toe area of the dam is becoming very thick. In fact, brush was so thick in certain areas of the embankment that a proper inspection of the dam could not be made. The dam embankment should be maintained properly and a good turf cover developed on all surfaces of the embankment.

Normal seepage was noted at the toe area, particularly in the deep section at the old brook location.

Spillway concrete and stone masonry was o.k. Some erosion was observed but the erosion is not bad. Normal flashboards were on the crest and water level was about one-half way up on the flashboards. The stone masonry of the gate structure was o.k. and some leakage, as observed previously, was taking place thru the joints of the stone masonry. This was not dangerous as existing.

The spillway chute and channel downstream of the spillway proper were observed to be in good condition.

In the opinion of the undersigned, the dam is safe; however, it should be better maintained, particularly as to the removal of brush growth and development of a good turf cover on the embankment.

G. Reynolds Dam

This small dam is in the same general condition as noted in recent years. The dam is dilapidated, receives little or no maintenance whatsoever, but it is not dangerous to persons and property downstream. Water level in storage is shallow and the dam itself is nothing more than a wide and shallow wall of jumbled boulders. A low section of the boulder wall has acted as a spillway for many years. The dam can pass flood flows over the entire area. Since the dam is so low in height and stores an insignificant quantity of water and, since little or no damage could ever be done by release of this water thru the loss of the dam, there does not appear to be any further need to carry on inspections at this dam.

H. Ludlow Mfg. Associates Dam (now Western Mass. Elec.)

This dam extends across Chicopee River between Indian Orchard and Ludlow. It was observed to be in satisfactory condition. The concrete overflow spillway shows evidence of erosion but it is in fair to good condition. The crest is eroded somewhat but not bad enough as yet to require any repairs. Construction joints are eaten out a bit but again, repairs are not needed. The joint at the left abutment where the overflow dam joins the abutment wall has been eroded but the depth of erosion is not increasing to any great extent.

Flashboards were on the crest to normal elevation and water level in storage was just below the top of the upper flashboard.

The toe area of the dam was o.k. Natural ledge in the bed of the stream was in good condition.

The left abutment masonry was o.k. The right abutment was satisfactory. The canal headworks at the right side of the dam was observed to be in good condition.

In the opinion of the undersigned, the dam is safe.

I. Western Mass. Electric Co. Dam

This stone masonry dam was found to be in satisfactory condition. The crest was on good grade and alignment. The wooden crest structure and its related flashboards were noted to be satisfactory. Some supports of the wooden crest construction are missing but the loss of these supports does not affect the safety of the day in any way.

Left abutment masonry and the canal overflow wall appear to be in satisfactory condition. The large stone fill placed at the face of the canal overflow wall a few years ago has been partially removed from the face of the wall at the downstream half of the wall. The face of the wall has been exposed. It appears as if the stone fill has been dug out. Perhaps there has been leakage thru the wall. A pile of cinders was observed adjacent to the wall and on the end of the access roadway leading to the dam. No seepage was noted however at the joints of the exposed stone block masonry even though the canal was full of water.

The depression on the surface of the rock fill over the culverts as previously reported has been corrected.

The masonry of the right abutment and the natural ledge were noted to be in good condition. The concrete flood training wall built on top of the right abutment was in good condition.

In the opinion of the undersigned, this dam is safe.

J. Block Dam (now Rozkuszka)

The spillway of this small dam was in fair condition. No flashboards were on the crest and water level in storage was spilling over the spillway crest. The downstream concrete riprap is in poor condition but it is serviceable.

Leakage was noted emerging from the toe of the concrete paved riprap at the right side. Also, leakage was observed thru the rock fill to the right of the old gatehouse and under the gatehouse concrete masonry. Seepage of this nature has been taking place for some time. This seepage does not affect the safety of the dam.

The dam is quite dilapidated, it receives little attention or maintenance but in the opinion of the undersigned, does not endanger persons and property downstream. Holyoke Street is located immediately below the dam and the roadway is at an elevation well above the crest elevation of the dam. Thus, any loss of the dam would result in the released water being allowed to flow downstream up to the capacity of the culvert under Holyoke Street. The culvert is a fairly large arch and it could pass a considerable quantity of water. However, the brook valley downstream could absorb the released water with little or no difficulty.

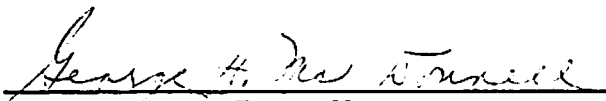
The height of the dam is quite low and though the ponded water stored by the dam is fairly large in area, it is relatively shallow. The dam is of the type of construction and the heavy stone fill at the right abutment area is placed in such a manner that any loss of the dam would undoubtedly release water downstream at a relatively slow rate.

As pointed out in previous inspection reports, though the dam is dilapidated and receives little maintenance or attention, it does not endanger persons and property downstream.

K. Carver Dam

This dam was breached in the flood of August, 1955 and no repairs have been made to the dam as yet. The flow of the stream passes thru the breach around the right side of the old stone masonry dam.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

Ludlow Manufacturing Company - Takings - 1894



1894 Reports

Location and Description of Lands, Water Rights, Rights of Way & Easements taken by Ludlow Manufacturing Company - 1894. Chapter 200 Acts of 1889. Recorded Hampden County Registry of Deeds March 2, 1894, James R. Wells Register.

City/Town	Ludlow
Name	Ludlow Manufacturing Company
Railroads	Boston & Albany Railroad
Streets	East Street
Water	Wood Pond
Water	Chapin Pond

LOCATION and DESCRIPTION

of

LANDS, WATER RIGHTS, RIGHTS OF WAY and  
EASEMENTS

TAKEN BY

LUDLOW MANUFACTURING COMPANY

1894



LOCATION and DESCRIPTION.  
of

LANDS, WATER RIGHTS, RIGHTS OF WAY AND EASEMENTS

TAKEN BY THE

LUBLOW MANUFACTURING COMPANY.

Edward Whitney, President.

Charles W. Hubbard, Treasurer.

Crammer A. Wallace, Selling Agent.

Office of the Ludlow Manuf. Co.

133 Essex Street.

Boston, Feb. 14, 1894.

A meeting of the stockholders of the Ludlow Manufacturing Company will be held at the office of the Company, 133 Essex Street, Boston, at eleven o'clock A.M., on Friday Feb. 23rd, 1894, for the purpose of taking lands, rights and privileges as authorized by the statutes of Massachusetts, Chapter 200 of the Acts of 1839; or ratifying any taking under such statutes, and any other matters connected therewith.

Copy of above notice was sent to all stockholders.

C. W. Wallace  
Clerk

C. W. Wallace  
Clerk



At a meeting of the stockholders of the Ludlow Manufacturing Company held at Boston Massachusetts pursuant to the foregoing call on the 23rd day of February A.D. 1894 it was voted;-

That the taking on behalf of said Corporation and under the authority of Chapter 200 of the Acts of the General Court of Massachusetts for the year 1889, of the land, water rights, rights of way and other easements below described or any part thereof for the purposes below set forth, is hereby ratified, and said Corporation hereby votes to take said land, water rights, rights of way and other easements under authority of said Act and for the purposes below set forth, to wit;,  
(see description attached)

Voted; that the Treasurer of said Corporation be hereby authorized and directed to file and cause to be recorded in the Registry of Deeds for Hampden County a description of the land, water rights, rights of way and other easements taken by said Corporation sufficiently accurate for identification with a description of the purposes for which the same were taken.

Allen  
Freeman N. Wallace  
Clerk.



The following is a description of the location and boundaries of lands water rights, rights of way, and other easements taken by authority of the Legislature of Massachusetts, Chapter 200 of the Acts of the year 1839, by the Ludlow Manufacturing Company for supplying itself and the inhabitants and occupants of the Town of Ludlow, within one mile of the Chicopee River, with water for the extinguishment of fires and for domestic and other purposes, including herein all the purposes authorized by the provisions of said Chapter 200,- said land and rights of way so taken all lying within the limits of said town of Ludlow.

This description is filed and recorded in the Registry of Deeds for Hampden County, Massachusetts in compliance with the provisions of said Chapter 200.

The above description was read to the stockholders at their meeting Feb. 23rd, 1894.

*S. Wallace*  
*Pres.*



The following described right of way and user is taken for the purpose of laying, constructing and maintaining at all times a line of water mains, pipes and other works and structures for the purposes above set forth and the right is taken at all times to enter upon and pass over said right of way for the purpose of laying, constructing and maintaining a line of water pipes, mains and other works and also for the purpose of transporting any materials for standpipes or for such other structures as it may from time to time be necessary to erect, construct, complete or maintain for such water supply: also for the purpose of placing and maintaining of poles or pipes for holding wires, and of placing wires upon in or over said premises.

Beginning at stone bound on land now or formerly of John O'Neil: thence southerly about fourteen degrees ( $14^{\circ}$ ) East about five hundred two and sixty four hundredths (502.64) feet to a stone bound: thence by the arc of a circle, curving toward the west, tangent to the last described line and having a radius of two thousand eight hundred sixty four and seventy nine hundredths (2864.79) feet about three hundred ninety six (396) feet to land now or formerly of James E. Haviland: thence by same curve about one hundred sixty two and eighty nine hundredths (162.89) feet to a stone bound: thence southerly tangent to last described curve, about one thousand forty eight and seventy three hundredths (1048.73) to a stone bound: thence by the arc of a circle curving toward the East, tangent to the last described line and having



a radius of two thousand eight hundred sixty four and seventy nine hundredths (2864.79) feet about four hundred ninety one and sixty seven hundredths (491.67) feet to a stone bound: thence southerly tangent to last described curve, about seven hundred nine and eleven hundredths (709.11) feet to a stone bound: thence southwesterly at an angle of about one hundred twenty six degrees, fifty four minutes and forty seconds ( $126^{\circ}-54'-40''$ ) measured on the westerly side of the line described, about one hundred thirteen and five tenths (113.50) feet to land now or formerly of F.F. McLean: thence in the same direction about one thousand eighty three (1083) feet to land now or formerly of Lucy Pease: thence in the same direction about one hundred twenty eight (128) feet to lands now or formerly of the Ludlow Manufacturing Company: thence in the same direction about twenty nine and ninety five hundredths (29.95) feet to a stone bound at the angle in a private way known as Hubbard street.

Said right of way and user to be twelve (12) feet in width, six (6) feet on each side of the line described.

Also the right of way for laying and maintaining said pipe line pipes and wires under and across the tracks and property of the Athol Branch of the Boston and Albany Railroad near the intersection of East and Hubbard streets as shown on accompanying plan.

The various tracts of land over and in which said right of way and



user is taken are supposed to belong to the persons designated upon said plan and in the foregoing description, to wit, to John O'Neil James B. Haviland, F.F. McLean, Lucy Pease all of said Ludlow and the Boston and Albany Railroad Company.

The above description was read to the stockholders at their meeting Feb. 23rd, 1894.

L. Wallace  
Clerk.

The following described lot of land is taken for the construction and maintenance at all times of a stand-pipe and other structures and works for the storage, conduct and supply of water, and is the same designated as "A" on the plan filed herewith and is supposed to belong to James E. Haviland of said Ludlow:-

Beginning at the southeasterly corner at a stone bound: thence westerly by the northerly line of land belonging now or formerly to F.F. McLean about one hundred fifty (150) feet to a stone bound: thence northerly at an angle of ninety degrees (90°) to last described line about one hundred fifty (150) feet to a stone bound: thence easterly at an angle of ninety degrees (90°) to last described line and parallel to first described line, to land belonging now or formerly to F. F. McLean at a stone bound: thence southerly by the westerly line of land belonging now or formerly to said McLean to stone bound at place of beginning. Containing about one half acre. (This parcel of land includes a portion of the pipe line as described above and as shown on accompanying plan.)

The above description was read to the stockholders at their meeting Feb. 23rd, 1894.

*F. H. Hall*  
*Pres*



The following described lot of land (also designated as Lot "B" on said plan) is taken for the purpose of the construction of a pumping station and other structures and works for the supplying of water as provided in said Chapter 200 and is supposed to belong to John O'Neil of said Ludlow. Beginning at the northwesterly corner at a stone bound in the dividing line between land of said O'Neil and land belonging to the Town of Ludlow: thence southerly about fourteen degrees (14°) East and parallel to the first described portion of pipe line about three hundred thirty and ninety-three hundredths (330.93) feet to a stone bound: thence northeasterly at an angle of ninety degrees (90°) to the last described line about fifty five (55) feet to a stone bound at which the description of the pipe line begins: thence in the same direction to Chapin Pond. Beginning again at the northwesterly corner at the stone bound: thence at an angle of seventy degrees, sixteen minutes and ten seconds (70°-16'-10") with the first described line and by land belonging now or formerly to the Town of Ludlow about eighty five and twenty six hundredths (85.26) feet to a stone bound: thence in the same direction to Chapin Pond: thence southerly by Chapin Pond to the end of the second described line. Containing about one half acre.

The above description was read to the stockholders at their meeting Feb. 23rd, 1894.

*Fuller Bank*



The following described right of way is taken for the purpose of access to and from the other lands and rights of way above taken, and for the passing thereupon and thereover with teams, on foot or otherwise, at all times, and for the purpose of transporting materials for the construction of such structures or works as may be at any time needed for the purposes set forth in said Chapter 200: ~~also for setting poles thereon and stringing wires thereover.~~

The land over which said right of way &c is taken is supposed to be owned by said John O'Neil.

Beginning on the easterly side of road leading from Ludlow Mills to Ludlow and at the southerly line of land belonging to the Town of Ludlow at a stone bound: thence easterly by land belonging now or formerly to the town of Ludlow about fifty and fifty seven hundredths (50.57) feet to a stone bound at the northwesterly corner of land this day taken by the Ludlow Manufacturing Company and marked "E" on accompanying plan.

Said right of way to be twelve (12) feet in width and on the southerly side of the line described.

The above description was read to the stockholders at their meeting Feb. 23rd, 1894.

*St. Hallam*  
*Clark*



Said Ludlow Manufacturing Company has also taken the waters of Chapin's Pond and Woods' Pond, both in said town of Ludlow. The purpose for which such waters are taken is the supplying of itself and the inhabitants and occupants of the town of Ludlow, within one mile from the Chicopee River, with water for the extinguishment of fires and for domestic and other purposes, including all the purposes for which said corporation is authorized to take said waters under the provisions of said Chapter 200.

The above description was read to the stockholders at their meeting Feb. 23rd, 1894.

Charles W. Hubbard  
Read  
Ludlow Manufg Co.

I hereby certify that the foregoing is a description of the location and boundaries of certain lands and rights of way taken by the Ludlow Manufacturing Company under the provisions of Chapter 200 of the Acts of the year 1889 , of the Legislature of Massachusetts, for the purposes named in said Chapter and for the purposes herein above stated.

Dated this 27th. day of February, 1894.

Charles W Hubbard  
Pres  
Ludlow Manf Co

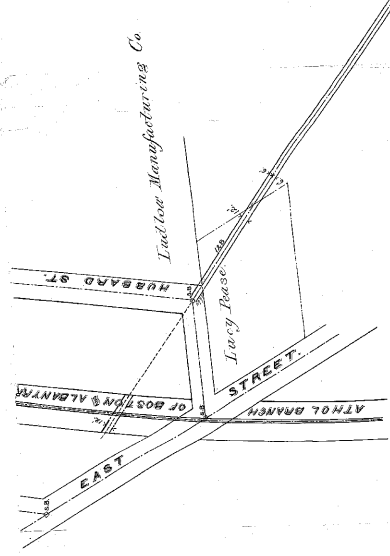
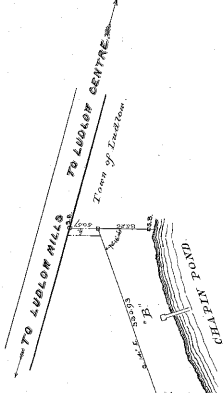


HAMPDEN COUNTY REGISTRY OF DEEDS.

MAR 2 1894

Received \_\_\_\_\_ H. \_\_\_\_\_ M. \_\_\_\_\_

*Attest Joseph H. Miller Registrar*



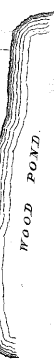
F. F. McLean.

James B. Harland.

F. F. McLean.

James B. Harland.

James B. Harland.



John O'Neil.

PROPOSED PIPE LINE  
OF  
WATER WORKS BELONGING TO LUDLOW MFG CO.  
LUDLOW, MASS. — JANUARY, 1894.  
Scale, 100 feet to the inch.



## Massachusetts Comm Acts of 1923 - Inspection of Dams & Reservoirs



### 1923 Reports

County Commissioners shall thoroughly examine with the aid of a competent engineer every reservoir, reservoir dam and mill dam at least every two years. 330 sites are enumerated. A letter as to the flooding in 1938 is included in this file.

Dam

Hampden County

ACTS OF 1923 - CHAPTER 334

SECTION 2. Section forty-five of chapter two hundred and fifty-three of the General Laws is hereby amended by striking out, in the second line, the word "three" and inserting in place thereof the word, two, - and by striking out, in the same line, the words "if in their judgment the public good requires it," - so as to read as follows:-

SECTION 45. The county commissioners shall, as often as once in two years, thoroughly examine every reservoir, reservoir dam and mill dam, by the breaking of which loss of life or damage to a road or bridge is likely to be caused, and they shall at any time make such examination upon written application by the aldermen of the city or selectmen of the town where such damage is likely to be caused or by a person whose property is likely to be so damaged. Such examination shall be made after notice to the owner of such reservoir or dam or to his agent and, if made upon such application, it shall be by the commissioners personally with the aid of a competent engineer. In other cases, the commissioners may cause it to be made by a competent engineer, who shall report to them in writing whether he considers it safe and in good condition and, if not, its condition in detail and the work or change required for safety and the public good. The engineer shall be allowed by the commissioners a reasonable compensation for his services, which shall be paid by the county.

Approved April 30, 1923.

Dec. 2-1925



Name of Town      Dams in use      Remains of dams      Natural Ponds.

Agawam	7	2	0
Blandford	8	7	2
Brimfield	9	2	1
Chester	6	5	1
Chicopee	23	1	0
East Longmeadow	0	1	0
Granville	8	13	2
Hampden	11	4	0
Holland	2	6	1
Holyoke	13	0	0
Longmeadow	2	0	0
Ludlow	8	0	3
Monson	35	2	2
Montgomery	7	2	1
Palmer	17	2	3
Russell	7	0	0
Southwick	7	4	1
Springfield	17	0	10
Tolland	6	2	2
Wales	10	5	0
Westfield	11	7	0
West Springfield	14	0	0
Wilbraham	<u>2</u>	<u>3</u>	<u>3</u>
	230	68	32

Mr. Smith  
Jan. 12/11/25  
Smith Dam  
Formerly  
Appleton's  
mills  
West Springfield  
and Co.

230
68
32
<hr/>
330



Commonwealth of Massachusetts

# County of Hampden

Springfield, Mass.

Office of the  
County Commissioners

George S. Cook  
Chairman

Daniel O'Neil  
John Hall

Dear Sir:

In accordance with the provisions of Section 45 of Chapter 253 of the General Laws as amended by Chapter 334 of the Acts of 1923 and as further amended by Chapter 178 of the ~~Acts of 1924~~ relative to the inspection, condition and safety of the dams of Hampden County, you are notified that your upper dam, located on the Agawam Company brook so called in the Town of Agawam, has been inspected by our engineer and your attention is called to the following recommendations made by him;

~~"That the leak in the downstream face of the dam north of the spillway abutment be repaired and that the trees growing on the upstream side of the dam be cut down, as they impair the stability of the structure by rocking in windy weather and the extension of their roots through the embankment might cause leakage eventually."~~

Now, therefore, in accordance with Section 46 of said Chapter 253, it is ordered that the above recommendations be complied with in a reasonable length of time.

Yours very truly,

COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.



Dear Sir:

In accordance with the provisions of Section 45 of Chapter 253 of the General Laws as amended by Chapter 334 of the Acts of 1923<sup>4</sup> relative to the inspection, condition and safety of the dams of Hampden County, you are notified that your upper dam, located on the Agawam Company brook so called in the Town of Agawam, has been inspected by our engineer and your attention is called to the following recommendations made by him;

"That the leak in the downstream face of the dam north of the spillway abutment be repaired and that the trees growing on the upstream side of the dam be cut down, as they impair the stability of the structure by rocking in windy weather and ~~the~~ the extension of their roots through the embankment might cause leakage eventually."

Now, therefore, in accordance with Section 46 of said Chapter 253, it is ordered that the above recommendations be complied with in a reasonable length of time.

*As per order by  
Chy. 176 of the  
Sec. 45  
1923 +  
Chy. 334*

Dear Sir:

In accordance with the provisions of Section 45 of Chapter 253 of the General Laws as amended by Chapter 334 of the Acts of 1923 and as further amended by Chapter 178 of the ~~General Laws~~ <sup>Acts</sup> of 1924 relative to the inspection, condition and safety of the dams of Hampden County, you are notified that your upper dam, located on the Agawam Company brook so called in the Town of Agawam, has been inspected by our engineer and your attention is called to the following recommendations made by him;

"That the leak in the downstream face of the dam north of the spillway abutment be repaired and that the trees growing on the upstream side of the dam be cut down, as they impair the stability of the structure by rocking in windy weather and the extension of their roots through the embankment might cause leakage eventually."

Now, therefore, in accordance with Section 46 of said Chapter 253, it is ordered that the above recommendations be complied with in a reasonable length of time.

Yours very truly,

COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

\_\_\_\_\_  
\_\_\_\_\_

## Massachusetts Comm Acts of 1924 - Inspection of Dams & Reservoirs



### 1924 Reports

**Amendments to the Acts:** a reservoir, dam or mill dam shall not be constructed or materially altered until plans and specifications of the proposed work have been approved by the county commissioners. (&O)

Dam

Hampden County

ACTS OF 1924 - CHAPTER 178

AN ACT RELATIVE TO THE INSPECTION OF DAMS AND RESERVOIRS.

WHEREAS, The deferred operation of this act would in part defeat its purpose and be inconsistent with the public interest, therefore it is hereby declared to be an emergency law, necessary for the immediate preservation of the public safety.

BE IT ENACTED, etc., as follows:

Section 1. Section forty-four of chapter two hundred and fifty-three of the General Laws is hereby amended by adding at the end thereof the words:-, nor to standpipes or tanks, nor to a dam where the area draining into the pond formed thereby does not exceed one square mile, unless the dam is more than ten feet in height above the natural bed of the stream at any point or unless the quantity of water which the dam impounds exceeds one million gallons, - so as to read as follows:

Section 44. A reservoir, reservoir dam or mill dam shall not be constructed or materially altered until plans and specifications of the proposed work have been filed with and approved by the county commissioners of the county where it is situated. Said commissioners shall retain and record such plans and specifications and shall inspect the work during its progress; and if at any time it appears that the plans and specifications are not faithfully adhered to, they may appoint an inspector to be constantly engaged at the expense of the owners in the supervision of the work. Upon a refusal of the owners or of their agents to adhere to said plans and specifications, said inspector may order the discontinuance of the work. This and the six following sections shall not apply to small dams, constructed for irrigation or for other purposes, the breaking of which would involve no risk to life or property, nor to standpipes or tanks, nor to a dam where the area draining into the pond formed thereby does not exceed one square mile, unless the dam is more than ten feet in height above the natural bed of the stream at any point or unless the quantity of water which the dam impounds exceeds one million gallons.

Section 2. Said chapter two hundred and fifty-three, as amended in section forty-five by section two of chapter three hundred and thirty-four of the acts of nineteen hundred and twenty-three, is hereby further amended by striking out section forty-five and inseting in place thereof the following: - SECTION 45. The county commissioners shall, as often as once in two years cause a thorough examination to be made of every reservoir, reservoir dam and mill dam by the breaking of which loss of life or damage to a road or bridge is likely to be caused, and they shall at any time cause such examination to be made upon written application by the mayor and aldermen of a city or the selectmen of a town where such damage is likely to be caused. Any party whose property is likely to be damaged by the breaking of any such structure may make a written application to the commissioners, setting forth the facts and the ownership of such structure which is

believed to be unsafe, and the commissioners may thereupon cause said structure to be examined. If upon examination the structure is deemed safe, the costs of such application and examination may be ordered paid by the party making the application. The commissioners shall cause every examination to be made by a competent engineer who shall report to them in writing whether he considers the structure safe and in good condition, and if not, its condition in detail and the work or the changes required for safety and the public good. The engineer shall be allowed by the commissioners a reasonable compensation for his services which shall be paid by the county in the first instance. Ownership of the structure shall be ascertained and, so far as possible, examinations shall be made in co-operation with the owner or his agent.

Section 3. Said chapter two hundred and fifty-three is hereby further amended by striking out section forty-seven and inserting in place thereof the following:- Section 47. If, after notice in writing to the owner of a reservoir or dam which has been so examined and adjudged to be unsafe, the said owner refuses or neglects to make such alterations or repairs as the commissioners order, they may, at the expense of the county, cause such reservoir or dam to be altered and repaired or any part thereof removed or the water drawn off, whichever they may consider necessary for the safety of life, property, roads or bridges on the stream below. After such removal, no structure shall be erected except in compliance with the three preceding sections, and after the water has been drawn off, the reservoir shall not be filled again until the orders of the commissioners have been complied with.

Section 4. Said chapter two hundred and fifty-three is hereby further amended by striking out section forty-eight and inserting in place thereof the following:- Section 48. The commissioners shall make such orders as they may deem just as to the payment by the owner, county or other party of the costs and expenses incurred by them under the three preceding sections, and if the reservoir or dam was adjudged to be unsafe, said costs and expenses may be ordered paid by the owner, with interest, from the time they were paid by the county. Notice shall be given the county treasurer and the owner or other party of the amount due the county.

Approved April 1, 1924.

Massachusetts Comm Natural Resources Dams - 1955



1955 Reports

Hampden County Commissioners report by Tighe & Bond - George H. McDonnell, County Hydraulic Engineer - September 14, 1955. A total of 6 dams are owned by Massachusetts Department of Natural Resources at this time.

Abutters	Brimfield State Forest
Abutters	Robinson Park
Abutters	Chester State Forest
Abutters	Granville State Forest
City/Town	Agawam
City/Town	Brimfield
City/Town	Chester
City/Town	Granville
Dam	Woodman Pond Dam
Dam	Boulder Park Pond Dam
Dam	Dean Pond Dam
Dam	Dearth Hill Pond
Dam	Half-Way Brook Pond Dam
Dam	Trestle Area Pond Dam
Name	Massachusetts Comm Natural Resources



WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING

**TIGHE & BOND**  
**CONSULTING ENGINEERS**

GEORGE H. McDONNELL, PROP.

189 HIGH STREET  
HOLYOKE, MASSACHUSETTS

September 14, 1955

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL  
C-D

The Hon. the Board of County Commissioners  
Hampden County Court House  
Elm Street  
Springfield, Mass.

Gentlemen:

In accordance with your request, we have inspected the dams owned by the Department of Natural Resources of the Commonwealth of Massachusetts, at Robinson Park in Agawam, at Brimfield State Forest in Brimfield, at Chester State Forest in Chester, and the Granville State Forest in Granville, and report to you on the condition of each of the dams as follows:

A. - ROBINSON PARK - Agawam.

Trestle Area Pond Dam: The pond and the dam are O.K. The water of the Westfield River rose to a level above the top of the dam. The pond behind the dam received silt to a depth of about 6" from the flood waters. The drain is open and no pond is formed.

B. - BRIMFIELD STATE FOREST - Brimfield.

1. Dean Pond: The dam is O.K. and there is no evidence of damage to the structure caused by the recent flood. Water behind the dam apparently did not rise high enough to flood over the top of the dam.
2. Woodman Pond: There is a washout through the dam at Woodman Pond. The washout is to the right of the main spillway and has a width of approximately 40 feet. Before this washout is repaired, plans for filling the washout should be prepared and consideration given to enlarging the spillway capacity through the dam.
3. Dearth Hill Pond: This dam is O.K. It apparently was topped a small amount but there is very little evidence that water in any quantity flowed over the dam.

C. - CHESTER STATE FOREST - Chester.

Boulder Park Pond: The dam at this pond was found to be O.K. There is apparently no damage to the pond as a result of the recent flood.

The Hon. the Board of County Commissioners  
Springfield, Mass.

-2-


September 14, 1955

D. - GRANVILLE STATE FOREST - Granville.

Half-Way Brook Pond: The right end of this dam has been washed out. Earth fill on the downstream side of the masonry portion of the structure has been washed away. From evidence at the site, it would appear that the dam was topped by about two feet of water. The stone masonry of the dam seems to be in satisfactory condition. The pond itself has apparently been partially filled with sand and gravel washed in by the storm. The earth fill on the downstream side of the stone masonry should be replaced and the washout properly filled to guarantee stability and imperviousness of construction. Since this dam was topped by the storm water, it would be advisable to give consideration to increasing spillway capacity when repairs to the structure are made.

From the inspection of the above six dams, it appears as if the only special work necessary is at Woodman Pond Dam in the Brimfield State Forest and at the Half-Way Brook Pond Dam in the Granville State Forest. The work here, as stated above, includes the repair of washouts and should also include an increase in the spillway capacity at each of these two dams.

Respectfully Submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM\*emm

September 21, 1955

Commonwealth of Massachusetts  
Department of Natural Resources  
15 Ashburton Place  
Boston 8, Mass.

Attention - Mr. Arthur T. Lyman,  
Commissioner of Natural Resources

Dear Sir:

In reference to your letter of August 29, 1955, we have had our County Hydraulic Engineer check the dams at Robinson Park in Agawam, in Brimfield State Forest in Brimfield, and in Chester State Forest in Chester, and in Granville State Forest in Granville. A report of the condition of the dams at each of these locations has been submitted to our Board, a copy of which is enclosed herewith for your information and use.

If you desire any further information on these dams, or if we can be of any further assistance to you, please do not hesitate to contact our Board. Our Hydraulic Engineer will be pleased to work with your personnel regarding the repairs to the two dams mentioned in the report, and in advising you regarding proper spillway capacities for these two structures.

Very truly yours,

BOARD OF COUNTY COMMISSIONERS

Thomas F. Sullivan

Chairman

September 23, 1955

Arthur T. Lyman, Commissioner,  
Department of Natural Resources,  
15 Ashburton Place,  
Boston 8, Mass.

Dear Mr. Lyman:

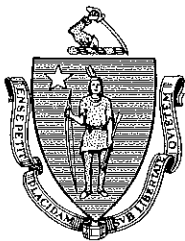
Enclosed herewith is the report of  
the County's Hydraulic Engineer, George H. McDonnell,  
in the matter of the dams at Robinson Park, Brimfield  
State Forest, Chester State Forest and Granville State  
Forest, which was not included with our letter of  
September 21, 1955.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

N.  
Encl.



# *The Commonwealth of Massachusetts*

## *Department of Natural Resources*

*15 Ashburton Place, Boston 8*

29 August 1955

Mr. William F. Stapleton, Chairman  
Office of County Commissioners  
Springfield, Massachusetts

Dear Mr. Stapleton:

When it is reasonably convenient, would you have your Hydraulic Engineer, Mr. McDonnell, check the following dams and/or outlets and advise me if he feels there is any emergency or special work that should be done:

Robinson Park, Agawam

Trestle Area Pond

Brimfield State Forest, Brimfield

Dean Pond

Woodman Pond

Dearth Hill Pond

Chester State Forest, Chester

Boulder Park Pond

Granville State Forest, Granville

Halfway Brook Pond

Any recommendations that he might care to make would be very much appreciated. Thanking you, I am

Sincerely yours,

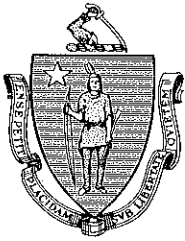
A handwritten signature in cursive script, reading "Arthur T. Lyman".

Arthur T. Lyman  
Commissioner of Natural Resources

ATL:mrh

Copy of this letter sent to Mr. McDonnell on August 30, 1955.





# *The Commonwealth of Massachusetts*

## *Department of Natural Resources*

*15 Ashburton Place, Boston 8*

22 September 1955

Mr. Thomas F. Sullivan, Chairman  
Board of County Commissioners  
County of Hampden  
37 Elm Street  
Springfield, Massachusetts

Dear Mr. Sullivan:

This will acknowledge receipt of your letter of September twenty-first in reference to the dams at Robinson Park, Brimfield State Forest, Chester State Forest, and Granville State Forest.

The report of your Hydraulic Engineer was not included with your letter, however, and I would appreciate your forwarding it to me at your earliest convenience.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Arthur T. Lyman", written over the printed name.

Arthur T. Lyman  
Commissioner of Natural Resources

ATL:mrh

Massachusetts Comm Public Works Legislation 1939



1939 Reports

Contains proposal that supervision of the Dams and Reservoirs be taken over by the state. Legislation relative to the construction of bulkheads adjacent to the Boston Airport. Amends Chapter 476 of the Acts of 1939.

Massachusetts Comm

Abutters	Boston Airport
City/Town	Boston

Recommendations for legislative action under  
Section 33, Ch. 30, G. L.

DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WATERWAYS

W-5. The funds which were provided by emergency legislation for the restoration of streams and the protection of property from floods have been exhausted and there remains considerable work that ought to be carried out. During the last two years a considerable amount of Federal relief funds was used in connection with the expenditure of State funds, but, in general, no contribution from local interests was required. For many years funds have been provided for the improvement of harbors and for the protection of the sea-coast from wave attack, - it is believed that a similar policy should be adopted for our fresh water streams in respect to improving the conditions of flood flow and the protection of property against floods. The Department should be authorized to continue the improvement of streams, make agreements with owners in regard to improvement of storage works and their operation, to acquire flowage rights and structures therefor and to construct or repair dams where storage held thereby is of importance during floods. Provision should be made authorizing the department to receive contributions, including Federal funds, for such work and to authorize towns to make contributions, and to authorize counties to supervise the operation of the control works under agreements made from time to time with the department.



PROVIDING FOR IMPROVEMENT OF RIVERS AND  
STREAMS FOR THE PURPOSE OF PROTECTION  
AGAINST FLOOD.

(Accompanying recommendation -5 of the  
Department of Public Works)

SECTION 1. Chapter ninety-one is hereby amended by inserting  
the following new sections:

Section 10A. The Department for the purpose of protection  
against flood may remove fallen trees, debris and other obstructions  
in rivers and streams, may alter the course or deepen the channel of  
any river or stream, may conduct any surface or ground water into the  
same, and may build retaining walls to support any part of the banks  
thereof; may restore, repair, construct or reconstruct dams or other  
structures in or over rivers or streams and may enter into agreements  
from time to time with the owners thereof or with the county commissioners  
of the county in which such structures lie for the operation of said  
dams and the control of the discharge therefrom. For the purposes  
authorized by this section the department may enter on private land and  
may accept from the Federal Government, the municipality or individuals  
or organizations contributions toward the cost of the work.

*Should  
come  
out.*

Section 29A. For the purpose of protection against flood,  
the department and any town may enter into agreements whereby said  
town may obligate itself to acquire such lands or rights therein as  
may be necessary for carrying out any work aforesaid or to pay all expenses  
incident to the acquisition of such lands and rights therein, or both.  
For such purposes the department, on behalf of the commonwealth, or  
on behalf of any town entering into an agreement to carry out any  
work as aforesaid, or any town so entering into any agreement afore-  
said on its own behalf, may enter upon or take by eminent domain  
under chapter seventy-nine of the General Laws, or acquire by purchase  
or otherwise, such public or private lands, cemeteries, public parks  
or reservations or parts thereof or rights therein, including lands  
or rights therein under the control of the metropolitan district  
commission, or such public ways, as may be necessary for carrying out  
any such work; provided that no damages shall be paid for public  
lands or parks, parkways or reservations so taken; and provided,  
further, that the department shall not enter upon land used as a  
source of public water supply without the consent of the officials  
in charge thereof.

SECTION 2. Subject to appropriation the department may  
expend for the purposes of this act in the years nineteen hundred  
and forty-one and nineteen hundred and forty-two the sum of two  
hundred and fifty thousand dollars in each year and any unexpended  
balance of the appropriation remaining at the end of nineteen  
hundred and forty-one may be expended in the year nineteen hundred  
and forty-two.

SECTION 3. This act shall take effect upon its passage.



Recommendations for legislative action under  
Section 33, Ch. 30, G. L.

DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WATERWAYS

W-6. The Statute of 1939, Chapter 476 empowered the department to construct bulkheads, dikes, etc., at the Boston Airport to provide an area within which the material dredged from the proposed sea plane channel may be deposited in order to extend the runways at the airport, and authorized subject to appropriation the expenditure of \$100,000 for that purpose. An examination of the material to be dredged indicates that additional bulkheads and dikes will be necessary at a total cost of approximately \$500,000. The Act of Congress authorizing the sea plane channel provides that local interests shall "furnish free of cost to the United States, as and when required, all lands, easements, and rights of way and spoil disposal areas for the initial work and for subsequent maintenance; hold and save the United States free from claims for damages resulting from the improvement; and give assurances satisfactory to the Secretary of War that they will, at their expense, provide suitable bulkheads, dikes or other structures for retention of excavated material."

The Department recommends that the statute be amended to provide for additional funds, to authorize the City of Boston to transfer to the Commonwealth its rights in lands and flats which are to be included in the areas to be dredged and filled and to authorize the department to take such lands and flats as may be necessary and to give such assurances as are satisfactory to the Secretary of War to meet the requirements specified by Congress.





*The Commonwealth of Massachusetts*  
*Department of Public Works*

*Division of Waterways*

*100 Nashua St., Boston*

December 21, 1940.

Charles W. Bray, Chairman,  
Hampden County Commissioners,  
Court House, Springfield.

Dear Mr. Bray,

I enclose herewith a copy of my recommendation with accompanying bill authorizing the continuance of stream clearance work and the taking over of reservoirs which have a definite flood protective value as a storage reservoir for holding back excess water.

If you approve of this idea I would appreciate it if you could advise me as to what reservoirs or ponds that you know of in your County that should be included in such a program.

There are probably many cases where dams have failed or where your County Engineer has found that water must be kept at a reduced level so as to provide for safety of the structures, where the Department might cooperate with the owner of the structure by strengthening it or improving its spillway capacity and under agreement with the owner to have some control over the excess storage during high water periods. I would appreciate very much getting your advice.

Wishing you the compliments of the season,  
I am,

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Richard K. Hale", written in a cursive style.

Richard K Hale  
Director Division of Waterways.

MVF

MEMBER  
AM. SOC. C. E.  
INST. C. E. GREAT BRITAIN  
ENG. INST. OF CANADA

## JAMES L. TIGHE

CONSULTING ENGINEER  
CALEDONIAN BUILDING, 189 HIGH STREET  
HOLYOKE, MASS.  
TELEPHONE 5825

MEMBER  
BOSTON SOC. C. E.  
ENG. SOC. WEST. MASS.  
AM. & N. E. W. W. ASSOC'S

MEMBER AM. INST. OF CONSULTING ENGINEERS, INC.

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
ANALYSIS OF WATER

December 27, 1940

WATER POWER INVESTIGATIONS  
AND DEVELOPMENT  
DAMS AND POWER INSTALLATIONS  
ESTIMATES AND APPRAISALS

The Hon. The Board of County Commissioners  
Hampden County, Court House  
Springfield, Mass.

Charles W. Bray, Chairman,

Dear Sir:

In regard to the letter received by the County Commissioners from Richard K. Hale, Director of the Division of Waterways of the State Department of Public Works, concerning a proposed legislative amendment providing for continuance of stream clearance work and the taking over of reservoirs as a flood protection measure, I have looked this over as you requested.

The letter states that a copy of the proposed legislative amendment authorizing the continuance of the clearance work and the taking over of reservoirs is enclosed, but, after reading over the enclosure, it appears that an error was made in the mailing, and the wrong copy enclosed.

The copy enclosed is an amendment to Chapter 467 of the Acts of 1939, and deals entirely with additional work to be done at the Boston Airport. It has no connection, apparently, with the subject of the letter.

Perhaps what Mr. Hale had in mind and intended to enclose, might be an amendment to Chap. 513, Acts of 1939, which provides for stream clearance and flood protection in the State.

I would suggest, therefore, that Mr. Hale's attention be drawn to this apparent error, and am enclosing a few lines which might be suitable for this purpose.

Respectfully submitted,

*James L. Tighe*

(Tentative)

Commonwealth of Massachusetts  
Department of Public Works  
Division of Waterways  
Boston, Mass.

Richard K. Hale, Director,

Dear Sir:

We have received your letter of December 21st, concerning the continuance of stream clearance work and the proposed taking over of certain reservoirs which have flood protective value in the County.

It appears, however, that the copy of a proposed legislative bill and your recommendation thereon which accompanied the letter, is not the correct one, for it seems to deal with an entirely different matter, namely, some construction work at the Boston Airport.

We believe that this copy was enclosed by mistake and are therefore returning it herewith, so that the proper one may be sent in its place.

Yours very truly,  
COUNTY COMMISSIONERS  
By \_\_\_\_\_ Chairman.

MEMBER  
AM. SOC. C. E.  
INST. C. E. GREAT BRITAIN  
ENG. INST. OF CANADA

# JAMES L. TIGHE

CONSULTING ENGINEER  
CALEDONIAN BUILDING, 189 HIGH STREET

HOLYOKE, MASS.

TELEPHONE 5525

MEMBER AM. INST. OF CONSULTING ENGINEERS, INC.

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
ANALYSIS OF WATER

December 31, 1940

WATER POWER INVESTIGATIONS  
AND DEVELOPMENT  
DAMS AND POWER INSTALLATIONS  
ESTIMATES AND APPRAISALS

MEMBER  
BOSTON SOC. C. E.  
ENG. SOC. WEST. MASS.  
AM. & N. E. W. W. ASSOC'S

The Hon. The Board of County Commissioners  
Hampden County, Court House  
Springfield, Mass.

Charles W. Bray, Chairman,

Dear Sir:

As requested in your letter of Dec. 26th last, relative to the proposed legislation authorizing not only the continuance of stream clearance work etc. by the State Department of Public Works, but besides, the taking over of reservoirs which have a definite flood protective value, it appears to me, as a layman at least, that this bill as drawn is very broad in scope and not definite enough regarding what the jurisdiction and responsibility of the County would be after such legislation, especially in reference to those dams and reservoirs taken and repaired and improved by the State.

Under the present statute the County Commissioners are charged with the supervision of all the dams in the County for the public safety. Under the proposed legislation, however, it would seem that the County, if it entered into an agreement with the state, could be charged with further duties regarding the operation of dams and the control of the discharge of water.

It might, therefore, be a question as to what jurisdiction the County would continue to have, especially over these dams and reservoirs taken over for alterations and repairs by the State or would it be a dual jurisdiction which is hardly ever advisable.

Inasmuch, as under the present law, the obligation on the County to supervise dams, in regard to their safety, is a serious responsibility, it would seem, therefore, that there should be no question as to where this responsibility

rests, and, if the County is to continue to have supervision over dams and reservoirs repaired and improved by the State, the proposed legislation should say so.

On the other hand, if the County would lose its jurisdiction over such dams and reservoirs, the proposed legislation should make this point clear.

It is noted also, that the bill is so broad in scope, covering as it does the changing of the courses of streams, widening and deepening of channels, constructing, repairing, restoring or re-constructing dams, acquiring and operating of reservoirs regardless of any flowage rights connected therewith, that the possible complications caused thereby, such for instance, as responsibility for interference with natural stream flow and ground water, responsibility for damages to private property and private rights etc. could be almost endless.

While the object of the new legislation is a good one, nevertheless, it is only fair to the County Commissioners to acquire a full knowledge of its exact nature, and the extent of the duties obligations and responsibilities, which the commission might have to assume, before favoring it.

In regard to the question of furnishing a list of the ponds and reservoirs in Hampden County, which might be included in such a program of flood control, such data will be looked up and a report made to the Board at a later date.

Respectfully submitted,

*James L. Tighe*



THE COMMONWEALTH OF MASSACHUSETTS

In The Year One Thousand Nine Hundred and Forty

(Accompanying recommendation W-6 of  
the Department of Public Works)

AN ACT AMENDING CHAPTER FOUR HUNDRED AND SEVENTY-SIX  
OF THE ACTS OF NINETEEN HUNDRED AND THIRTY-NINE  
PROVIDING FOR THE CONSTRUCTION OF BULKHEADS AND  
OTHER WORK AT OR NEAR THE BOSTON AIRPORT, SO CALLED.

Be it enacted by the Senate and House of Representatives in  
General Court assembled, and by the authority of the same, as follows:

SECTION 1. Chapter four hundred and seventy-six of the acts  
of nineteen hundred and thirty-nine is hereby amended by striking  
out section two and substituting therefor the following:

Section 2. Subject to the approval hereinafter  
required, said department of public works is hereby authorized and  
empowered to construct bulkheads and to do any other work at or  
adjacent to the Boston airport, so called, which in its opinion is  
necessary to provide an area within which filling may be placed for  
the enlargement of said airport. For the purpose of carrying out  
this work the department may accept funds from the Federal Government,  
municipalities or organizations interested, and may expend the same  
in addition to the amount hereinafter appropriated for the work,  
provided, that no work authorized by this section shall be begun  
until a contribution has been made, which, with the amount hereinafter  
appropriated, shall be sufficient to provide such dikes and bulkheads  
as the Federal Government may require; nor until Congress shall make  
available the sum of two million three hundred thousand dollars for



dredging a seaplane channel in accordance with the project described in document three hundred sixty-two of the seventy-sixth Congress, first session; nor until the city of Boston shall have transferred its rights in lands and flats as hereinafter provided.

SECTION 2. The city of Boston is hereby authorized and empowered to transfer to the Commonwealth of Massachusetts, without monetary consideration, two parcels of land in Boston Harbor, the first of said parcels consisting of Apple Island, an island in Boston Harbor, together with the flats appurtenant thereto, the second of said parcels of land being a portion of the flats appurtenant to World War Memorial Park, acquired for park purposes, lying east and south of line marked T-U in the harbor line as described in chapter four hundred and eleven of the acts of nineteen hundred and thirty-nine, and said line as extended southwesterly to the property line between the said city flats and the flats of the commonwealth.

SECTION 3. The department is hereby authorized to furnish, free of cost to the United States, as and when required, all lands, easements, and rights-of-way and spoil-disposal areas for the initial work and for subsequent maintenance; hold and save the United States free from claims for damages resulting from the improvement; and give assurances satisfactory to the Secretary of War that it will, at its expense, provide suitable bulkheads, dikes, or other structures for retention of excavated material. The department is hereby authorized to acquire by purchase, gift, deed or otherwise, or to take under the provisions of chapter seventy-nine of the General Laws, such lands, flats or rights therein as may be necessary for the purposes hereinbefore stated.

SECTION 4. For carrying out the purposes of this act the department may expend such sums not exceeding five hundred thousand dollars as may hereafter be appropriated.

SECTION 5. This act shall take effect upon its passage.

Monson Dam Inspections - 1956 - 1970



1956 Reports

Inspections by Tighe & Bond.

	Aldrich Dam
City/Town	Monson
Dam	Greany Dam
Dam	Paradise Lake Dam
Dam	Remington Dam
Dam	Reynolds Dam
Dam	Lisceck Dams
Dam	Brown Dam
Dam	Maxwell Dam
Dam	Sportsmen's Club Dam
Dam	Jurczyk Dams
Dam	Phillips Dam
Dam	Moulton Dams
Dam	Zero Manufacturing Dam
Dam	Bradway Dam
Dam	Ricci Dam
Dam	Gaudreau Dam
Dam	Pulpit Rock Pond Dams



Dam	White Pool Dam
Dam	Chicopee Brook Dam
Dam	Mace Dam
Dam	Monson City Water
Dam	Lunden Dam
Dam	Springfield Sportsmen's Club Dam
Dam	Overlook Farm Dam
Dam	Platt Dam
Dam	Schimmel Dam
Dam	Conant Brook Flood Control Dam
Dam	Church Manufacturing Company Dam
Dam	Elliot Dam
Dam	Bradway Dams
Dam	Monson State Hospital Dams
Dam	Smith Pond Dam
Dam	Sanderson Dams
Dam	Monson Associates Dam
Dam	Ellis Mills Dams
Dam	Shepard Dams
Dam	Bumpstead Dam
Dam	Calkins Dam
Dam	Burdick Dam



Dam	DePace Dam
Dam	Sullivan Brothers Dam
Dam	Anderson Dam
Dam	Sutcliffe Dam & Dike
Dam	Aldrich Dam
Name	U S A Corps of Engineers
Streets	Route 32
Water	Maxwell Brook
Water	Chicopee Brook
Water	Twelve Mile Brook
Water	Pulpit Rock Pond
Water	Temple Brook
Water	Paradise Lake
Water	Pinnacle Creek
Water	Conant Brook
Water	Calkins Brook
Water	Freitag Pond

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

TIGHE & BOND, INC.  
CONSULTING ENGINEERS  
BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
GEORGE H. McDONNELL  
PHILIP W. SHERIDAN

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

C.D. Monson  
Dec. 10, 1956

The Hon. The Board of County Commissioners  
Hampden County Court House  
31 Elm St.  
Springfield, Mass.

Gentlemen:

Recent inspections of dams in the Town of Monson have now completed the inspection routine in this community and all dams have been examined one or more times during 1956. The following is a report on the condition of the various dams situated in Monson.

A. A. E. Gaudreau Dam

This was a small earth dam situated on Calkins Brook in the northwest corner of Monson. The dam embankment carried a road leading from state highway Route 20 to private property adjacent to the pond formed by the dam. The pond was used for private recreational purposes. This dam was formerly owned by Graves. During the flood of August, 1955, the entire dam was washed out. The flood water in the valley of Calkins Brook was so high that the railroad tracks northerly of the dam were inundated. There is no indication that this dam will be repaired.

B. Overlook Farm Dam

This is a small dam situated on a very small local drainage area between Boston Road, Route #20, and the main line tracks of the B&A Railroad. The dam is located near the intersection of Calkins Road with the state highway. This dam suffered considerable damage during the flood of August, 1955. The dam does not come under County jurisdiction. It forms a very small pond and is only a few feet in height. Because of its location between the railroad and the state highway and the possibility of its enlargement wherein it could come under County jurisdiction, the dam is inspected annually to be certain that it is not enlarged without proper approval.

C. Monson State Hospital Dams

There are three dams on the property of Monson State Hospital. Two of these dams were located on a small brook at points between Granite Street and Bald Peak Road.

These two dams have been breached for many years and an inspection of the site of these two dams has been made annually to be certain that a free waterway is maintained. The flood water of August, 1955, widened the breaches thru these two dams.

The third dam is located on the main brook that flows southerly thru the Hospital grounds. This dam was topped and a portion of the earth embankment washed away at the right end of the structure. Since the flood this dam has been abandoned. Prior to the flood, little or no water had been stored behind the dam and the basin of the pond was nearly entirely filled with silt and sediment. As of the time of the last inspection, it would appear that the dam is to be abandoned and that no water will be stored again at this site. The breach at the end of the dam is still partly open and a breach in line with the brook course has been shaped and paved to form a free waterway.

#### D. Church Mfg. Co. Dam

This structure is situated adjacent to the plant of the Church Mfg. Co. on Chicopee Brook adjacent to Route 32 just northerly of the built-up portion of Monson. The dam has been used in connection with the Church Mfg. Co. plant. During the flood of August, 1955, no serious damage occurred at the dam. The abutment wall at the left of the dam near the highway was topped by the flood water and a portion of the wall washed away. Since the flood the old wooden gate has been left open and no pond has been formed behind the dam. The owner is having plans and specifications prepared for certain maintenance as well as additions and alterations to the dam and the gate structure.

#### E. Moulton - Chicopee Brook Dam

This is a stone masonry dam located on Chicopee Brook just upstream from the pond behind the Church Mfg. Co. Dam. The structure has a spillway extending the full width of Chicopee Brook. It is old and delapidated but like many stone masonry dams is quite strong and has stood up well even thru the flood of August, 1955. The right end of the masonry dam terminates at an earthen dike that is well sodded and covered with a growth of trees. The flood water of 1955 topped this dike but did no damage. When last inspected the dam was found to be satisfactory.

#### F. Moulton dam at Rte 32

On a small tributary to Chicopee Brook, just upstream from the dam last described is a small structure that forms a pond just westerly of highway Rte 32. In fact, the highway fill and embankment form the dam at this location. The spillway is a tube or culvert type spillway with a vertical inlet structure having a relatively fine rack laid horizontally

across its opening. The pond formed by this dam is apparently used for private purposes. During the flood of August, 1955, a portion of the road was washed away, but the dam proper and the spillway held satisfactorily. When last inspected the structure was in the same general satisfactory condition as noted in the past years. It would be advisable to provide a better inlet arrangement to the spillway in order to prevent the plugging up of the fine rack and the possible overflowing of the pond across the highway.

G. Anderson Dam

This is an earth embankment with a masonry spillway located on a small tributary to Chicopee Brook at a point between Carpenter Road and Bethany Road. The pond formed by the dam is privately owned and is used for aesthetic and recreational purposes. An emergency swale spillway has been formed in recent years at the left end of the dam. During the flood of August, 1955, this dam was topped by the flood water but only minor damage resulted at the structure. When last inspected the dam was found to be in very good condition.

H. Sullivan Bros. Dam

I. L. DePace Dam

J. J. J. Burdick Dam

The above three dams were all masonry structures located on the small brook that is tributary to Chicopee Brook and that flows thru the built-up portion of Monson between Granite Street and Rte 32. During the flood of August, 1955, all of these dams were completely washed away. The drainage area is quite steep and the valley very narrow. The quantity of flood water flowing was so great that hardly a trace of any of these three dams remains today.

K. White Pool Dam

This is a small masonry structure adjacent to Ely Road just above the intersection of Palmer Lower Road with Main Street in Monson center. This dam is of the overflow type and is nothing more than a concrete wall situated in a narrow rock valley that forms a small swimming pool for private use. No damage of consequence was caused by the flood of August, 1955, and when last inspected the dam was found to be in satisfactory condition.

L. Ellis Mills Lower Dam

This was a masonry structure located on Chicopee Brook just upstream from the Ellis Mill Building and located westerly of Main Street in Monson center. The pond formed by the dam was used for industrial purposes. The dam formerly was in the shape of an arch and was a well-maintained structure. During the flood of August, 1955, the entire left portion of the dam was washed away, Main Street was completely washed thru, and the northerly end of the Mill building swept away. This dam

has not been restored and the valley of the brook has been cleaned up to form a free waterway.

M. Ellis Mills Middle Dam

This is an abandoned structure that has been breached for years. It was a masonry dam situated on Chicopee Brook between Bumpstead Road and Main Street. The site of this dam has been inspected annually to be certain that a free waterway is maintained.

N. Ellis Mills Upper Dam

This is a stone masonry overflow structure on Chicopee Brook at the southeasterly corner of the intersection of Hampden Lower Road and Bumpstead Road. An earth dike forms the left abutment at this dam. During the flood of August, 1955, a portion of the spillway was washed out. The spillway was formerly made of heavy granite blocks. This portion of the spillway has been repaired and was found to be in good condition at the time of the last inspection.

O. Monson Associates Dam

This is a small masonry structure located on Chicopee Brook easterly of Bumpstead Road and just upstream from Elm Street. The flood water of August, 1955, topped the abutment areas of this dam. The dam withstood the flood very well and little or no damage resulted. The pond area behind the dam is silted and hardly any water is stored. Though the dam is somewhat delapidated, it is in reasonably good condition and presents no danger to persons and property downstream.

P. Monson Water Department Dam

This dam is located at Monson Reservoir at Conant Brook just upstream of Wales Road. It is a masonry structure and is relatively high. The spillway extends the full width of the brook and the pond formed is a reservoir used for public water supply purposes. During the flood of August, 1955, the abutment areas of the dam were topped. Earth fill behind the downstream spillway walls was washed out and the training walls themselves damaged or washed away. The dam and abutment areas suffered no damage. When last inspected, the channel walls referred to as training walls between the spillway and the adjacent highway culvert were being replaced with concrete.

Q. R. S. Sutcliffe Dam and Dike

These two structures are located on Squire Pond. This pond is on the headwaters of Conant Brook. The dike and the dam are shallow and are of earth construction. During the flood of August, 1955, both were topped by the flood water but no damage was caused to either structure. When last inspected they were found to be satisfactory. Little change has taken place at either of these two structures over the past years.



R. Sutcliffe Small Dam

This structure is on Sutcliffe Road northerly of Munn Road near the Wales-Brimfield town line. The pond formed is very small and the structure negligible in height and length. In the opinion of the undersigned this is not a county dam but has been carried in the records for a number of years. The flood water of 1955 topped this dam but no permanent damage resulted. When last inspected the structure, though quite delapidated, seemed satisfactory.

S. Smith Pond Dam

This is an earth structure with a masonry spillway on its easterly side. An emergency spillway is situated at the northerly end of the pond. The pond was formerly the W. C. Moulton Ice Pond. At present it is privately owned and is used for recreational purposes. The flood water of 1955 did very little damage at this dam. A small washout occurred at the northerly end of the pond near the emergency overflow. This washout has not been repaired. It should be filled with rock and earth, well packed.

T. Aldrich Dam

This structure is located on Chicopee Brook at a point where the brook crosses under Stafford Road in the southerly portion of Monson. The road itself forms the dam embankment and the spillway consists of the culvert under the road. A small masonry and boulder spillway notch provides for the overflow of excess water from the pond to the brook. No damage was done to the structure by the flood of August, 1955. When last inspected it was found to be in satisfactory condition.

U. C. P. Bradway Dams

These are two in number and are located at the headwaters of Chicopee Brook on a deadend road westerly of Stafford Road in the southerly portion of Monson. Peaked Mt. is situated just to the west of these dams. The lower dam was a masonry and earth structure that has been breached for many years. The site of this dam has been inspected annually to be certain that the breach is not closed and that a free waterway exists. The upper dam forms a pond of considerable size. The dam is short and relatively shallow. The spillway is a notch in the earthen embankment and is paved with boulders. The pond formed is probably a natural pond that has been raised somewhat by the construction of the small dam. No damage of consequence occurred at this structure as a result of the flood of August, 1955. Though somewhat delapidated, the dam is in relatively good condition and is safe.

V. W. R. Elliot Dam

This structure is on one of the many tributaries that join to form Temple Brook. It is situated southerly of Hampden Lower

Road and easterly of Butler Road. The dam is not on the main stream itself but consists of a structure to impound water in a separate basin adjacent to the main stream. Water is introduced into the pond by pipeline from the main stream. Thus, the structure is not a County dam but ever since its construction a few years ago has been inspected annually to be certain that no blocking of the main channel of the brook is caused by the owner.

W. Springfield Sportsmen's Club Dam

This dam is on Bradley Road just westerly of Wood Hill Road and northerly of Hampden Lower Road. The dam is an earthen embankment with a boulder-masonry overflow spillway near the center of the structure. The pond formed is used by the Springfield Sportsmen's Club for fishing and recreational purposes. No damage of consequence occurred to this dam as a result of the flood of August, 1955. Improvements are being made to the spillway that amount to routine maintenance. The swale spillway at the right end of the dam should be enlarged and cleared.

X. Bumpstead Dam

This is a small earth and stone masonry dam located on a small brook tributary to Chicopee Brook at a point just upstream from Bumpstead Road. It is doubtful if this dam comes under County jurisdiction. The height of the dam is less than 10 feet, the quantity of water stored is insignificant, and the drainage area is somewhat less than one square mile. No damage occurred at this dam in the flood of August, 1955. The dam was topped by the flood water and Bumpstead Road immediately downstream was washed out. The dam has been inspected annually and though quite delapidated always is found to be reasonably safe.

Y. J. R. Calkins Dam

This is an earthen and stone masonry structure that forms Calkins Pond northerly of Bumpstead road near its intersection with Bogan's Road. The pond formed by the dam is fairly large in area but quite shallow in depth. The pond is used for private farm purposes. In the flood of August, 1955, the dam was topped by about 6 inches of water. No washout occurred at the structure, though the road downstream was washed thru. The dam is somewhat delapidated but the spillway masonry has been improved and maintained recently. This structure was found to be in satisfactory condition when last inspected.

Z. Paradise Lake Dam

This is an earthen embankment forming Paradise Lake. The embankment is a portion of the Paradise Lake Road and the spillway is a small masonry trough thru the embankment. The flood water of August, 1955, topped this embankment and a small washout

occurred north of the spillway. The washout was very shallow and approximately 20 feet in width. This condition has been repaired and the dam restored to its pre-flood condition. When last inspected, the structure was found to be satisfactory. The owner should give consideration to enlarging the spillway capacity of this dam.

AA. Remington Dam

This is an earth and stone masonry structure located on Twelve Mile Brook adjacent to Wood Hill Road and upstream of Wilbraham Road. The spillway was of the overflow type and was situated near the center portion of the dam. The flood water of August, 1955, washed out the central section of the dam. The damaged portion of the structure includes the spillway itself. The dam is now owned by A. R. Phillips. When last inspected the breach thru the dam had not been repaired and a wide free waterway was available for the passage of the water of Twelve Mile Brook. The owner is contemplating the repair of this dam and will file plans and specifications of proposed repairs before going ahead with the reconstruction work.

BB. Reynolds Dam

This is an earth and boulder masonry structure located on a small brook that is tributary to Twelve Mile Brook and is just upstream from the dam last described. Reynolds Dam is not on the main course of the brook itself but rather forms a pool situated to the west of the main brook. Water is diverted to the pond behind this dam thru a small diversion facility. The structure does not come under County jurisdiction but is inspected annually to be certain that no blocking of the main brook occurs as a result of annual improvements and changes to the Reynolds Dam.

CC. Liscek Dams

These are two small earth structures located upstream of Wood Hill Road near Peck St. The structures are privately owned and form small ponds used for recreational and farming purposes. These dams are small in size and are usually kept in very good condition. Though both structures were topped in the flood of August, 1955, there was apparently no damage of consequence at either of the dams. When last inspected, both were found to be in satisfactory condition.

DD. E. L. Brown Dam

This is a shallow earth dam located at the headwaters of Pinnacle Creek just north of Peck Street and west of Cote Road. A masonry spillway of the chute type is located near the center of the dam. The width of the earth embankment is fairly large in comparison to the general height of the structure. No

damage of consequence occurred at this structure as a result of the flood of August, 1955. When last inspected, this dam was found to be in fairly good condition.

EE. Maxwell Dam

This is a stone masonry structure located on Maxwell Brook just east of Maxwell Road in the northwesterly corner of Monson. This dam has been used for private recreational purposes in recent years. Though the structure has been somewhat delapidated for a long time, its condition does not endanger persons and property downstream. No damage of consequence occurred during the flood of August, 1955, and when last inspected this structure was found to be satisfactory.

FF. Sportsmen's Club Dam

This is an abandoned structure on Maxwell Brook downstream from the dam just described and located easterly of Dickinson Road. It has been inactive for a number of years. The breach at this location has been inspected annually to be certain that a free waterway is maintained.

GG. Pulpit Rock Pond Dams

There are three dams at Pulpit Rock Pond. These dams were formerly known as the S. H. Green Dams. Two of the dams form the main Pulpit Rock Pond while the third dam forms a small pond just downstream of the westerly main dam. Pulpit Rock is situated at the confluence of Thayer and Twelve Mile Brooks. The third dam--that is, the smaller of the three structures--was a masonry and earth dam that was completely washed out by the flood of August, 1955. This dam apparently was not used for any practical purpose in recent years. The westerly dam on the main pond suffered little or no damage as a result of the August, 1955, flood. The easterly main dam composed of a concrete and stone masonry overflow spillway and a fairly large earth dike was washed thru at the right end of the spillway where the spillway structure joined the dike. Since the flood, plans and specifications for a new dam have been prepared and filed. The new dam is a masonry structure replacing the earth dike and plugging the breach at the washout location. At the time of the last inspection, final stages of construction work were being carried on at this new dam.

HH. Dr. Mace Dam

This dam was a fairly large stone masonry structure on Twelve Mile Brook just upstream from Pulpit Rock Pond. The dam was of the masonry overflow type having a spillway crest for nearly the entire length of the structure. The flood water of August, 1955, washed out approximately one-half of the stone

masonry overflow portion of this dam. The breach is wide and deep and a free waterway is available for the flow of Twelve Mile Brook. When last inspected, no work had been done on cleaning up or to begin to repair this dam. A suitable free waterway still exists for the passage of the brook flow.

## II. Dr. Sanderson Dams

These are two in number situated on Twelve Mile Brook just upstream from the dam last described. The lower of the two dams is at Reimer Rd. and the fill of the road forms a portion of the embankment of the dam. During the flood of August, 1955, the west end of the lower dam forming Baldwin Pond was washed out. This washout breached Reimer Road as well as the dam itself. Immediately following the flood, the road washout was repaired and consequently the dam again ponded water and formed Baldwin Pond. The spillway is a small stone masonry structure located at the right of the embankment fill. This structure is small and should be enlarged to properly handle anticipated flood flows. The road fill is granular material and would undoubtedly wash out rapidly if flood water should again top Reimer Road. This condition is potentially dangerous and the owner should be required to enlarge the spillway capacity or to properly treat the fill to prevent a future second failure of this embankment.

The second and upper dam forms Freitag Pond. The dam is situated just southerly of Reimer Road. The dam is an earth structure with stone masonry spillway of considerable size. Little damage occurred to this dam as a result of the flood of August, 1955. When last inspected the structure was found to be in satisfactory condition. There is hardly any pond formed by the dam since nearly the entire volume of the pond is filled with silt and brush growth.

In summary, there are 42 dams and dam sites in the Town of Monson. Nine of these locations are either former dam sites at which no water was ponded prior to the flood of August, 1955, or they are sites of dams that at the present time do not come under County jurisdiction. These sites are inspected annually to be certain that at the breached dams free waterways are maintained and at the dams not coming under your jurisdiction, improvements are not made without the approval of your Board. Seven of the dams in Monson that were washed out by the flood of August, 1955, will probably never be replaced. A number of these dams had not been used for any practical purpose for some time and they had stored very little water. Three dams that suffered major damage have either been repaired or repairs are now being made in accordance with approved plans. Two dams that



suffered major damage in the flood of August, 1955, still remain breached but probably will be repaired in the near future. Four of the dams suffered minor damage that required some maintenance and repair work. All other dams were not damaged to any extent by the flood of August, 1955.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHN/f

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

CD Monson  
Sept. 11, 1959

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspections of various dams in the Town of Monson have now completed the inspection routine in that community and all dams have been examined at least once during the present year. The following is a report on the condition of the various dams and dam sites located in the Town of Monson.

A. E. A. Gaudreau Dam

This dam is still breached as the result of the flood of August, 1955 and no pond is formed whatsoever. A wide free waterway exists thru the location of the old embankment.

B. Overlook Farm Dam

Because of the small size of the dam and pond, the structure does not come under County jurisdiction. Since it is located adjacent to the main-line tracks of the Boston & Albany Railroad as well as just south of Route 20, it has been inspected annually to determine if its condition endangers the railroad or the highway. When last inspected, it was found that the earth embankment had been greatly improved and a new spillway constructed of asphalt had been built thru the embankment. The spillway is nothing more than a paved trough. This spillway has been built poorly and is already failing. It will probably be washed out by next spring. As it now exists, however, the quantity of water in storage is negligible and the complete failure of the spillway will not endanger persons and property downstream.

C. Monson State Hospital Dam

The one remaining dam at Monson Hospital, breached in the flood of August, 1955, has now been completely removed and little or no remains of the structure are visible at the site. The brook valley has been graded and the site of the pond partly filled. Since the dam no

longer exists and there is no indication that it will ever be replaced, no further inspections will be necessary at the site. The elimination of this dam removes the last of three structures at the Monson State Hospital from the annual inspection routine.

D. Church Manufacturing Co. Dam

The left abutment area from a point about opposite the crest of the dam to a point about 40 ft. upstream has been backed with a concrete wall on the land side. It would seem as if the owner, in having this wall constructed, is attempting to seal off leakage noticed last year thru the left abutment just downstream of the dam itself. Leakage still exists thru a joint in the abutment, but the amount of water flowing does not seem as great as that noticed last year. A study and an investigation made by the owner following the report of last year indicated that the abutment wall had enough mass to resist the earth load plus the hydraulic head due to this leakage.

The spillway itself at this dam is in satisfactory condition. In general, the dam as a whole, including abutment areas, was found to be O.K.

E. Moulton - Chicopee Brook Dam

No water was found stored behind the dam at the time of the last inspection. The flow of the brook passed thru the wheel pit at the site of the old power installation. The central section of the bar rack has been hoisted enough to allow for normal flow of the brook. Heavy run-off could result in the quantity of water flowing to be in excess of the free unscreened opening. It would seem advisable to remove all of the bar racks from in front of the waterway so that debris will not collect thereon and thus guarantee increased flow capacity.

The dam itself is in need of maintenance and repairs. If it is not to be activated again, then it would seem advisable for the owner to breach the structure so that there will be a wide free waterway for the passage of flood flows.

F. Moulton Dam at Route 32

The condition of this structure was found to be satisfactory.

G. Anderson Dam

Repairs have recently been completed at the main spillway of this dam. All stone work has been re-grouted and pointed. Concrete has been poured at the critical sections of the spillway to strengthen the structure and correct erosion problems. When last inspected, the spillway was

in excellent condition. The dam embankment is in good condition and the swale spillway at the left end of the embankment was found to be satisfactory.

On September 3, 1959, an extremely heavy runoff occurred on the drainage area of this dam and though all spillway facilities were taxed to capacity, the flood flow passed the dam without damaging any portion of the structure.

H. J. J. Burdick Dam

This dam has not stored water for many years. The structure was nearly completely washed away in the flood of August, 1955. Since then, there has been no indication that the dam will be reconstructed. At the time of the last inspection, the area has been cleaned up somewhat and the brook flowed thru a normal and reasonably well shaped channel.

Inspection of this site apparently will no longer be necessary.

I. White Pool Dam

Downstream of the masonry dam and to the right side of the structure a portion of the stone masonry is being undermined. Conditions are not bad at the present but will be checked again next year to see if the undermining is becoming progressively worse. If it is, recommendations will be made at that time regarding the correction of this condition. The spillway itself is in good shape.

Evidence on the ground shows that runoff during the storm of Sept. 3, 1959, overflowed the abutment areas of this dam and even overflowed the swimming pool walls themselves causing water to flow across the yard between the home and the pool. A small amount of washing occurred in the sand surrounding the pool walls. No other sign of damage was found.

Consideration has been given to recommending that the abutment areas be raised to confine the flow of the stream to the spillway itself. However, a review of conditions in the field indicates that by allowing excess water to spread out as has been experienced, there is little chance that any major damage will occur or that the dam will fail. Consequently, it is felt that conditions at this dam are satisfactory for the present time.

J. Beaucage Dam

This is the small diversion dam just upstream from the White Pool Dam. It does not come under County control since it is low in height, stores an insignificant quantity of water and has a very small drainage area. The purpose of the dam is to divert water around the pool dam in a corrugated metal pipe. Thus, it is indirectly a part of the pool construction.

K. Ellis Mills Upper Dam

This dam was found to be in good condition. Flashboards were found to be in place at the normal elevation.

L. Monson Associates Dam

This dam is in good condition considering the lack of care and maintenance given to the structure for many years. The pond behind the dam is completely silted to the crest level of the spillway. Little or no water is stored. In reality, the dam is nothing more than a waterfall in the brook.

M. Monson Water Dept. Dam

This dam was found to be in good condition. No increase was noted in the leakage at the left training wall where it joins the downstream face of the dam. There is some indication of surface wash of earth from behind the left training wall. This may have been a result of the extremely heavy runoff of September 3. The condition is not bad now and, because of the training wall itself, should get no worse. It will be checked during the annual inspection of next year.

N. R. S. Sutcliffe Dam and Dike

The tree recommended for removal from the dike during the inspection of last year has been cut down. The dike was found to be in good condition.

The dam itself is in good condition. There is very little leakage thru this old stone structure and the spillway is satisfactory.

O. Smith Pond Dam

Fill has been placed at the north end of the pond where a washout had occurred in the flood of August, 1955. Repairs in this area have been recommended in the past. The fill that has been placed is quite sandy and, at the downstream face, is soft. Overtopping of the fill would undoubtedly cause it to wash out quite rapidly. However, though freeboard could be improved, the lowest point in the area is on natural ground to the west and it is thru this section that overflowing water will pass. Thus, the sandy fill is acceptable as it now exists.

The spillway at the pond was in good condition. Abutment areas need brushing. This matter was discussed with Mr. Smith, the present owner, and he has agreed to take care of this matter. A tree growing from one of the abutment areas and, previously recommended for removal, has been cut down.



P. Aldrich Dam

This dam was found to be in satisfactory condition. The pond is small and quite shallow. Sediment now makes up over 1/2 of the pond volume and thus, very little water is stored. Also, pond growth is becoming quite thick. The embankment and the spillway itself were found to be satisfactory.

Q. C.P. Bradway Dams

1. Lower Dam This structure has been breached for years and a suitable free waterway still exists at the site.
2. Upper Dam This structure was found to be in very good condition, though the brush growth is becoming quite tall. The dam and spillway have received little or no attention in many years but they both function well and from a safety viewpoint, are satisfactory.

R. W. R. Elliot Dam

This structure is still the same as reported in previous years. As existing, the dam does not come under County jurisdiction but is checked annually to be certain that conditions do not change wherein it would come under County control.

S. Springfield Sportsmen's Club Dam

The main spillway at this dam should be cleared of weeds and vegetation. The fish screen is still in place and should be removed in the fall and kept off of the spillway until after the spring runoff.

The swale spillway at the right of the dam should be enlarged considerably to increase its capacity.

There is a small leak thru the dam at the left of the spillway but this leak has existed for years and does not endanger the dam.

T. Bumstead Dam

This is a very small and dilapidated structure but it is in satisfactory condition. Only a small quantity of water is stored and the pond is becoming filled with vegetation and sediment.

U. J.R. Calkins Dam (now Jurczyk)

At the time of the last inspection, this dam was found to have been breached by the owner and the pond drained. Breaching has been accomplished by excavating a channel thru the old small earth and cobblestone embankment.

The dam is now owned by William M. Jurczyk, Inc. of Monson and plans are on file for a new and much larger dam. As of September 10, 1959, no construction has started on the new dam. Consequently, conditions as now existing at this structure are satisfactory.

V. Paradise Lake Dam

This dam and spillway were found to be in very good condition. The owner, Mr. Eaton, was present during the inspection and the maintenance of the dam was discussed.

W. Remington Dam

This dam now owned by A.P. Phillips was breached during the flood of August, 1955, and to date, no repairs have been made. The breach is wide and provides a large waterway for the passage of flood flows.

X. Reynolds Dam

This structure is still in the same condition as reported in previous years. The structure forms a pool for private recreational purposes adjacent to, but not directly on the main brook. Consequently, flood flows do not pass thru the pool formed by this dam. As now existing, the structure does not come under County jurisdiction. The site is inspected annually to determine whether or not any change is made that would result in the dam coming under County control.

Y. Liscek Dams

1. Lower Dam      This dam was found to be in good condition.
2. Upper Dam      Leakage was noted thru the stone masonry of the spillway at a point near the base of the structure. The leakage is about equal to the normal flow of the brook and consequently, the quantity of water ponded is below normal. The condition of the dam is not endangered by the leakage. However, the leak was discussed with Mrs. Liscek, wife of the owner. The owner plans to repair the spillway leak this fall.

Z. E. L. Brown Dam (now Dr. M. Schimmel)

Masonry repairs recommended a year ago to the spillway area have been made but only a bare minimum of the desired work was accomplished. It is possible that more repairs will be needed in a year or two to prevent further deterioration of the structure. This condition will be noted and reported upon in the future. As of the present time, the dam and spillway are in satisfactory condition.

AA. Maxwell Dam (now Warren Platt, Jr.)

This dam is still in the same general condition as reported in previous years. The pond volume is completely filled with earth. Trees as well as brush now grow thickly throughout what was once the pond. No water is stored whatsoever. The brook flows over the spillway of the dam and the structure now acts simply as a water fall. The dam is not dangerous to persons and property downstream from a released water point of view.

BB. Sportsmen's Club Dam

This dam has been breached for many years and little evidence of the old structure remains. The waterway at the site is wide enough for the passage of storm flows.

CC. Pulpit Rock Pond Dams

1. New Concrete Dam The grouted riprap at the downstream left of the dam has been cracked in the lower area. The cracking seems to be a result of some settlement and possibly slippage. This cracking is not serious now but will be watched for further movement in the future. The toe of the grouted riprap is being washed underneath by the water overflowing the main dam. This condition is not serious as yet but may require attention in another year or two.

At the right abutment, surface wash has removed some of the earth behind the concrete wing wall. This washed out earth should either be replaced and then loamed and seeded or the small gulley formed by the washout should be filled with boulders and rock.

Flashboards were found in place on the spillway and these flashboards should be removed very shortly and remain off of the dam until after the spring heavy runoff.

2. West Dam The spillway of this structure was found to be in satisfactory condition. One low flashboard was in place on the dam. The earth embankment was not covered with as thick a brush growth as

noted in previous years. However, there are too many trees on the embankment and brush should be cut from time to time during the year.

3. Small Dam Flashboards in the main spillway were found at a much higher elevation than those in the smaller spillway. This condition does not provide an improved water level in the pond but simply reduces the safety factor at the dam. The flashboard level at the large spillway should be lowered to that of the boards in the small spillway. Following the summertime and early fall use of this pond, the flashboards should be removed from both spillways until after the spring runoff.

Brush and trees growing in and on the earth and stone embankment forming the major part of this dam should all be cut down and removed.

DD. Dr. Mace Dam

This structure is still breached as the result of the flood of August, 1955 and a wide free waterway exists thru the old dam for the passage of flood flows.

EE. Dr. Sanderson Dams

1. Upper Dam This dam and its spillway were found to be in relatively good condition. The pond volume is completely filled in and a thick growth of brush and vegetation is forming. Very little water is stored though the pond area is fairly large.
2. Lower Dam The spillway capacity at this dam should be increased. This has been recommended previously. Stop logs located in the spillway slot should be removed and kept out of the slot until such time as proper spillway capacity is provided.

FF. Lunden Dam

This dam was found to be in excellent condition. The earth embankment is well shaped and covered with a good growth of sod. The spillway tube was found to be in good condition. The trough spillway at the right of the dam has an excellent sod growth on its floor and on the side towards the dam. This spillway and the dam as a whole is very well maintained.


Toe seepage from springs still exist downstream and at the left end of the earth embankment. This condition does not seem to be softening the embankment itself.

GG. Bradway Dam

This is a new earth dam with tube and swale spillway constructed on the farm of Omer E. Bradway and situated easterly of East Hill Road. Plans of this structure were filed with the County and an Interlocutory Decree was issued approving the plans and specifications. At the time of the last inspection the construction work was in the final phase. The embankment sections had been completed and grass was starting its growth. Some touch-up work was still required at a few locations on the embankment. The spillway tube was in place and a debris catching collar was installed at the top of the spillway tube. Water entering the tube must pass upward between the outside of the tube and the inside of the collar. Thus, there is little chance for debris entering the tube itself.

The swale spillway trough has been shaped but no growth of grass has as yet been started. Very little water was ponded and, at the time of the last inspection, it appeared as if ponding had just begun.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Monson  
Oct. 25, 1961

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen :

Inspections conducted recently throughout the Town of Monson have now completed the inspection routine in that community and all dams located in Monson have been examined at least once in the year 1961. The following is a report on the condition of the various dams and dam sites situated within Monson.

A. E. A. Gaudreau Dam

This structure, breached at the time of the flood of August 1955, remains breached and there is little indication that the Owner will ever rebuild the dam. The breach is wide and deep and a suitable free waterway exists thru the location of the old embankment to allow for the safe passage of storm flows. Since so little of this dam now remains and a major undertaking would be required to reconstruct the dam, there seems to be no further need for inspections at this site.

B. Overlook Farm Dam

This structure was found to be in the same general condition as noted a year ago. The small embankment is fairly well shaped and reasonably maintained. The spillway is in suitable condition and was operating satisfactorily at the time of the last inspection in September. This dam impounds a negligible quantity of water and failure of the dam would not endanger persons and property downstream. Since the structure is adjacent to the main highway, Route 20, it is inspected annually to be certain that the size of the dam is not increased to a point wherein a large quantity of water would be stored.

C. Church Mfg Co. Dam

The area at the left abutment of this dam was found to be firm and dry at the ground surface. Seepage at the left abutment is still taking place from the face of the left abutment wall at a point just downstream of the dam itself. Most of this seepage was noted occurring at the first joint up from the bottom of the wall and for a distance of about 10 ft. out from the dam. Seepage noted this past year seems to be a little more in quantity than that noted a year ago but nowhere near as much as noted a few years back, when an investigation of the abutment was made by the Owner.

Seepage pipes thru the dam at the left toe were all noted to be slowly dripping water with the exception of the fourth pipe. During 1960, only two of these pipes were noted as seeping water.

The masonry spillway was found to be in satisfactory condition. The toe area of the spillway portion of the dam was found to be OK and no more erosion was noted than had been seen in the past.

Some brush and vegetation was noted as growing at the right end of the spillway crest. This growth seemed to be a little more dense than previously observed. The growth is not damaging the structure or the masonry as yet. Its condition will be noted and if it thought advisable, a recommendation will be made next year regarding the removal of the growth, if the Owner has not taken care of it himself by then.

D. Moulton-Chicopee Brook Dam

The water wheel installation at this structure has been partly repaired and the pit area filled with water to pond level. Some shafting has been belt connected to the wheel shaft and it looks as if the unit may be re-activated for personal or hobby use in the not too distant future.

The dam is in about the same general condition as previously reported. It was noted to be ponding water to its crest elevation at the time of the last inspection. Seepage thru and at the drawdown pipe seemed to be well controlled and the pipe was noted to be much tighter than observed a year ago.

The pond volume is fairly well silted and thus the water volume in storage has been greatly reduced. The dam is in need of masonry

maintenance but, as existing, is not dangerous. A year ago the Owner was notified that if the dam is to be maintained for future use, it should be properly repaired. If the dam is not to be used again, the structure should be breached and all gates, as well as stop-logs at the wheel pit left wide open.

With the improvements as noted at the time of the last inspection, it is apparent that the Owner plans to continue the use of the dam. Since he has been notified of the condition and since work has apparently been done on the dam this past year, it is recommended that no action be taken in connection with this dam until conditions are noted at the annual inspection of next year.

The right abutment area is dilapidated, as it has been for many years, but it does not create a dangerous situation.

With each passing year the pond volume back of the dam is filled further and further with debris, silt and other water-borne deposits. The loss of the dam by failure of a section of the masonry or, by failure of one of the abutments, would release some water downstream but the pond and the dam at the Church Mfg Company would be well able to absorb the extra discharge.

E. Moulton Dam at Route 32

This dam was found to be in satisfactory condition. It was in the same general condition as noted a year ago.

F. Anderson Dam

The embankment and spillway at this dam was found to be in very good condition. The work recommended in your letter of a year ago has been accomplished by the Owner. The embankment was found to be well cut, properly shaped and maintained. As of the present time only two small trees remain on the dam embankment and, in discussing these with the Owner, it was recommended that they be allowed to remain for a few more years. The Owner signified willingness to remove these trees if he was so directed.

The main spillway masonry is in excellent condition and the structure is well maintained. The swale spillway around the left of the embankment was free and clear for the passage of storm flows.

G. White Pool Dam

At the time of the last inspection a few weeks ago, it was noted that the masonry wall was in fairly good shape. The masonry downstream and to the right of the wall is still in need of minor repairs but, conditions as of the present time are not bad enough to warrant any direct order to the Owner regarding these repairs. The general conditions at this dam have changed very little in recent years.

At the time of the last inspection, the pool was found to be empty and the drains open. Vegetation growing in the pool bottom and along the stream bed at the deep section of the pool indicated that the pool had been drawn down for some time.

H. Beaucage Dam (Diversion Dam for White Pool)

This structure is not large enough to come under County jurisdiction. It operates in conjunction with the White Pool Dam described above and consequently this small diversion dam is inspected annually. It was noted that leakage is occurring thru the masonry at the bottom of the dam wall. A portion of the stones in the masonry have become dislodged and in order to keep the dam in good operating condition, repairs should be made to the masonry wall.

I. Ellis Mills Upper Dam

The masonry at this dam and the abutment areas were all found to be in satisfactory condition. Flashboards were on the spillway at the time of the last inspection and the top of the flashboards were noted to be at normal elevation. The spillway masonry itself is in satisfactory condition and the alignment of the crest was noted to be good.

J. Monson Associates Dam

This dam was found to be in the same general condition as reported last year. Though the structure is somewhat dilapidated and is not in active use, it does not endanger persons and property downstream. The pond volume back of the dam is completely silted to the crest of the spillway with sand, gravel and miscellaneous water-borne materials. The dam as existing is nothing more than a waterfall in the course of the brook. Conditions at this dam are satisfactory.

K. Monson Water Department Dam

Portions of this dam at each abutment area were found to be in

satisfactory condition. The masonry wall on each side of the spillway section is in good condition. Training walls on both sides of the dam below the structure and connecting the dam area to the highway culvert bridge were found to be OK. The spillway is in good condition and at the time of the last inspection water was overflowing the entire crest length. The drawdown gate now leaks very little and hardly any seepage was noted thru the embankment masonry walls.

L. R. S. Sutcliffe Dam and Dike

The embankment and the stone masonry wall of the dike were both found to be OK. No large trees are growing from the embankment and the entire dike was found to be kept fairly well brushed and maintained.

At the dam the embankment was found to be well stabilized and in good condition. The stone masonry wall on the downstream side of the embankment is in satisfactory condition. The masonry spillway is OK and, for an old structure, it leaks very little. Pond level was noted to be a few inches below spillway crest at the time of the last inspection in September. Though the structure is old and somewhat rough, the dam and the spillway are safe.

M. Smith Pond Dam

The embankment section of this dam has been improved and cleared of brush growth since the time of the last inspection. The embankment looks better than the undersigned has noted it in recent years. The masonry spillway has been patched as was recommended by your Board a year ago. The spillway is in fairly good shape. The stream bed downstream of the dam spillway has been cleaned and cleared. The left abutment just downstream of the dam might need paving and stabilization in time to come. However, the embankment is OK now.

At the north end of the dam the embankment dike was found to be satisfactorily maintained and in relatively good condition.

N. Aldrich Dam

This dam was noted to be in the same general condition as reported a year ago. The culvert wingwalls at the head of the culvert tube are in need of repairs and maintenance. Trees growing from the masonry area should be cut down to prevent further damage to the masonry. A year ago the Town was notified of the condition and it was then pointed out that the matter was a Highway matter, rather than a County dam



matter. Since the Town already knows of the condition and since it is not related to the direct impounding of water but rather to the highway culvert, there seems to be no need to notify the Town again. If by next year, that is two years since the last notice, no improvements have been made, a routine notification could then be sent again.

O. C. P. Bradways Dams

1. Lower Dam This dam has been breached for many years and, at the time of the last inspection the breach was in the same general condition as previously noted. A suitable free waterway exists to allow for the passage of storm flows.

2. Upper Dam This dam was found to be in about the same general condition as noted in previous years. Though the structure is quite dilapidated and receives little or no maintenance, it is in suitable condition. The pond was found to be full at the time of the last inspection and the spillway was operating satisfactorily. The dam embankment is becoming overgrown with medium sized trees though at the present time they are not large enough to endanger the dam. At future inspections if it is thought advisable that maintenance be done on the structure, recommendations will then be submitted to your Board.

P. W. R. Elliot Dam

This dam is still in the same general condition as reported previously and does not come under County jurisdiction. The structure is nothing more than a pool located to the side of the brook and the pool is pipe fed from the brook. It is inspected from time to time to be certain that the conditions as existing remain the same.

Q. Springfield Sportsmen's Club Dam

The embankment at this dam was found to be in fairly good shape. The stone masonry wall was found to be satisfactory. The screen rack was noted in the spillway and, as recommended in the past, the rack should be removed and replaced with one of the swinging type so that should it become plugged with debris, it will swing outward to release the debris and surplus ponded water. The swale spillway at the site of the dam is still too small and it should be greatly enlarged to provide proper protection to the dam in time of heavy storm flow runoff.

R. Bumstead Dam

This small dam is very dilapidated and there is no evidence that it ever

receives any maintenance or care. However, the structure is not dangerous since it is very low in height and ponds an insignificant quantity of water. The pond volume is nearly completely full of sediment and vegetation growth within the pond area is becoming quite thick. The old masonry wall of the dam is still in relatively good condition despite its age.

S. Jurczyk Dam

It was noted that seepage is occurring at the toe of the dam at a point about 80 ft. to the left of the masonry overflow spillway. The seepage occurs at a very low rate and may not be directly related to water seeping thru the dam embankment. The dam embankment and the toe area are not spongy and, because of the topography of the left side of the valley, the water could be ground water emerging from the side rather than from under and thru the dam. In order to prevent damage to the public roadway and also to aid in preventing the formation of ice, it would seem advisable for the Owner to construct a shallow subsurface drain with perforated pipe laid in a trench backfilled with gravel and then pitch and drain this perforated pipe to the spillway structure at the road culvert entrance.

The embankment section to the right of the spillway also showed some seepage at the toe of the dam 50 ft. to the right of the spillway structure. Again, this area of the embankment and the toe is not soft and seems fairly stable. The seepage is far enough away from the roadway where there does not seem to be any need for the construction of a drain at the present time.

An inspection of the spillway shows that the Owner has removed the extra flashboard pins but that the flashboard as now existing is higher than the flashboard that has been approved for use at the dam. It is recommended that the Owner remove the existing flashboard and replace it with one that will provide the proper vertical height of 3 ft. 2-inches from the top of the flashboard to the top of the abutment or, the abutment areas and the embankment sections of the dam should be raised to provide this required vertical height above the top of the existing flashboard.

T. Paradise Lake Dam

This structure was found to be in about the same general condition as noted previously. The spillway chute is in a good state of repair. The Owner has dug a fairly deep trench along the toe of the dam embankment which could be for the purpose of constructing a drain. Because of

having dug out the area, water falling from the end of the spillway chute could now undermine the chute and damage it. It is recommended that the Owner provide masonry protection to the wall of earth under and at the end of the spillway chute in order that undermining will not take place.

U. Phillips Dam

This structure was found to be in the same general condition as previously reported. The dam was breached in the flood of August 1955 and the breach has never been repaired. As now existing, the breach is wide and deep and allows for the safe passage of flood flows in the stream.

V. Reynolds Dam

This dam is in the same general condition as reported last year. The structure in reality is not a dam coming under County jurisdiction since it forms a pond or pool, as it could be called, at the side of the brook and all flow of the brook passes around the pool. The pool water level is maintained by pipe connections from the brook at the upstream end of the pool thru the embankment of the artificial pool.

W. Lisceck Dams

1. Lower Dam At the time of the last inspection, this dam was found to be drawn down and the pond empty. The pond is being cleaned and the main spillway at the dam is being greatly improved by the Owner with very good stone masonry work. The earth embankment section of the dam was found to be in good shape.

2. Upper Dam This dam was found to be in very good condition. The masonry spillway has been repaired and pointed. The earth embankment and its pond side masonry wall were found to be in very good condition.

X. Dr. M. Schimmel Dam (Formerly Brown Dam)

Some patching of the masonry at this dam should be done in the near future, particularly at the upper end of the spillway chute and in the right wall thereof. The masonry at this point has been eroded quite deeply and high rates of overflowing water may eat thru the remaining thin masonry section and thus begin to do damage to the earth embankment itself. The masonry wall along the edge of the water on the pond side of the dam is also in need of repair.

The earth embankment is satisfactory and is well shaped, as well as properly maintained.

It is recommended that the Owner be advised regarding the repairs to the masonry so that the repairs can be done before more expensive repairs might be needed in the future.

Y. Warren Platt, Jr. Dam (Formerly Maxwell Dam)

This dam was found to be in the same general condition as has been noted during recent years. No pond is formed since the pond volume is completely filled with silt and water-borne debris. The entire pond area is well overgrown with trees and brush. Though the dam is quite dilapidated it is OK and as existing is really nothing more than a water-fall in the course of the stream. In spite of the age of the stone masonry and lack of maintenance, the embankment and stone work is in fairly good condition.

Z. Pulpit Rock Pond Dams

1. New Concrete Dam Concrete repair work to the lower portion of the riprap in the old spillway section is satisfactory. A few voids now exist at the junction of the top of the repaired area with the riprap previously placed. The voids are not deep though and thus are satisfactory for the present time.

It was noted that the lower three stop-logs in the left stop-log opening of the masonry dam appeared to be bulging downstream a bit. This Winter when the pond is empty it would be advisable for the Owner to check these stop-logs to be certain that they are not failing. At the time of the last inspection on Sept. 27, 1961, it was noted that the flashboards were in place for the full length of the spillway crest. The flashboards should be taken off this Fall and kept off until after the Spring rains of 1962.

In general, the masonry of the dam and the toe area of the dam in the stream bed are good.

The right abutment area and the right stop-log structure were found to be OK.

The gate stand was found too loose but suitable for the present time.

2. West Dam Flashboards were noted to be in place on the spillway and should be removed this Fall until after the Spring rains of 1962.

It was noted that the vertical height of the flashboards in the West Dam are higher than the level of the flashboards on the new concrete dam to the east.

At the central section of the flashboards on this dam the upper of two boards has been removed. This lower elevation is about the correct elevation for flashboards on the dam. The extra height of flashboards on this dam crest should be removed and kept off permanently. The bottom board making up the flashboard assembly provides sufficient flashboard height for this spillway crest and the extra flashboard height does nothing to improve the pond. In fact, the extra height decreases spillway capacity.

The spillway chute section was found to be satisfactory.

Brush had been cut from the earth embankment of the dam. A number of trees still remain and these should be thinned out in order that those remaining can grow better, as well as thus reduce the number of trees on the embankment.

3. Small Dam All along the embankment and the stone wall of this structure the brush and trees should be cut down and removed. The larger of the two spillways at this dam has flashboards in place that are about 8" higher than the boards on the smaller spillway. These higher level boards should be removed and the crest of these boards lowered to the level of the top of the boards on the small spillway. By removing the top board from the flashboard assembly on the large spillway, the proper height of flashboards will then be maintained.

Though the stone masonry of the small dam is dilapidated, the structure is satisfactory.

AA. Dr. Mace Dam

This structure was breached in the flood of August 1955 and has not been reactivated. The breach is wide and deep and is suitable for passing flows.

BB. Shepard Dams (Formerly Dr. Sanderson Dams)

1. Upper Dam This dam was found to be in the same general condition as reported a year ago and is almost completely filled in with sand, silt and water-borne debris. As a consequence, very little water is in storage when the pond is filled to spillway crest. The embankment of



the dam, the stone masonry spillway and the stone wall in front of the embankment were all found to be in satisfactory condition, though somewhat dilapidated.

2. Lower Dam This dam was found to be in very good condition. The old spillway has been repaired with gunite and stop-logs were found to be in place at the level of the top of the concrete wall. Whereas this condition was not recommended in the past, because of improvements to the dam and an increase in the spillway capacity, the maintenance of the flashboards to this high level is now satisfactory. The emergency spillway construction at the road on the dam embankment was found to be in good condition. No seepage of any consequence was noted at the toe of the new grouted stone spillway chute.

At certain locations in the grouted stone paving there are voids which should be opened and then packed with grout. A close examination of the surface of the paving will indicate the location of most voids.

It was noted that 11 stones had been placed along the edge of the pond at the new paved roadway emergency spillway in the area of the spillway crest. These stones have been placed there apparently to protect traffic from going into the pond. However, these stones will act to greatly reduce the spillway capacity in time of extreme storm flow. These stones, especially the first thru the sixth large stone, counting from the driveway towards the spillway should be removed and replaced with thin guard posts or some other protective device that will not reduce the spillway capacity in the manner caused by the stones.

CC. Lunden Dam

This dam was found to be in very good condition. The embankment was OK, well shaped and extremely well maintained. The spillway tube was clear and clean and all evidence of rust has been controlled thru painting of the spillway tube metal. The wide swale spillway has an excellent turf cover.

Seepage water downstream of the embankment and at the left end of the dam is about the same as noted in the past. This seepage water is not from the dam. The undersigned pointed out to the Owner how well the dam was maintained.

DD. O. E. Bradway Dam

The embankment at this dam was found to be in fairly good shape and improvements have been made since the time of the last inspection.

The slopes of the embankment are being flattened by bringing in and compaction of additional material. The swale spillway to the left of the embankment has a better growth of turf and the Owner, as well as his son pointed out to the undersigned that they plan to further fertilize and improve the turf during the coming year.

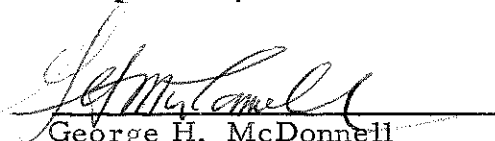
An earth dike is being constructed to the right of the swale spillway, as recommended a year ago, to prevent any overflowing water from reversing its direction and washing at the toe of the dam.

Rusted surfaces on the corrugated iron over flowpipe have been painted and the structure looks in very good condition. The embankment is quite hard and stable. The dam in general is in very good condition.

EE. Dr. J. V. Greany Dam

The earth embankment and the related small field and cobblestone wall were found to be in fairly good condition. The spillway channel was clean and clear. It functioned very well. Though the dam is not at present large enough to come under County jurisdiction, it is inspected annually at the request of the Owner and any recommendations for maintenance are included in my report for forwarding to Dr. Greany by your Board.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

***CONSULTING ENGINEERS***

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Monson  
October 11, 1968

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections have been made from time to time throughout this present year of 1968 at various dams situated within the Town of Monson. Inspections recently completed have concluded the inspection routine in that community and every dam located within Monson has now been inspected at least once during 1968. The following is a report on the general condition of the various dams and dam sites within the Town of Monson.

A. Overlook Farm Dam

The embankment of this small dam is again over-run with a thick growth of brush and weeds. The spillway is in poor condition in that the asphalt paving has become broken and a hole has formed under the paving. Any water passing through the spillway will flow into the hole under the spillway through the break in the paving and will eventually cause loss of the dam.

This dam receives very little maintenance and the owner of the structure should take the necessary steps to protect his investment by repairing the spillway and properly maintaining the embankment forming the dam.

This dam is small in size, being only about 5 feet in height, it impounds an estimated one-half million gallons and the drainage area is considerably less than one square mile. Consequently, the dam

does not come under County jurisdiction but is inspected periodically since its location is directly beside State Highway Route 20.

It is recommended that the owner be advised of the condition of the dam.

Since the structure does not come under the jurisdiction of the County within the intent of Chapter 253 of the General Laws, the undersigned will not include the dam in the periodic inspection reports in the future unless so directed by your Board.

B. Church Manufacturing Company Dam

This dam is in the same general condition as reported on April 8, 1968.

The spillway portion of this dam was found to be satisfactory. There were no flashboards on the crest and water was overflowing the crest. Brush growth previously reported at the right abutment of the dam and at about the end of the crest of the dam has been cut. However, the root structure is still present. This root structure should be killed or removed so that there will not be any opportunity for re-growth of this brush.

The same comment applies to brush and vegetation growing from the masonry in the vicinity of the drawdown gate structure. All of this growth should be dug out of the masonry joints or the root structure killed.

A surface sink hole reported previously at the front corner of the left abutment of the dam still exists and there is ample evidence that surface water in time of storm runoff collects in the sink hole and passes down thru the ground to emerge from the base of the abutment wall just downstream of the gate structure.

Subsurface water passes around and behind the left abutment. This condition has been occurring for years and does not as yet endanger the dam. The seepage water is relieved thru an opening at the base of the masonry on the downstream side of the drawdown gate structure. Relief of the water at this point prevents build-up of pressure behind the abutment wall and the downstream training wall. It is thru this same opening that surface water emerges after passing into the sink hole.

This sink hole will become larger and the continuous wash of surface water thru the soil will deteriorate conditions behind the abutment. The sink hole should be filled with coarse material and surface runoff should be directed over or around the area. If the area is paved, to prevent entrance of surface water into the ground at this location, it can be expected that the paving will fail from time to time due to settlement of the ground at the location of the sink hole. Any paving placed here must be repaired from time to time. By backfilling the sink hole, from time to time, with a coarser material than sandy gravel, it is possible that stabilization may eventually occur and there will be no further washing out of the sand thru the seepage opening at the base of the abutment wall.

There is evidence of a second seepage hole just north of the one described and at the location of the second guard rail post from the southerly end of the adjacent guard rail. This sink hole should also be filled with compacted material.

The owner was advised of this condition in a letter from your Board on April 10, 1968. The owner should be notified that corrective action should be taken at this dam.

C. Moulton-Chicopee Brook Dam

This dam is in very poor condition. A report on the dam was submitted on April 8, 1968, and a letter was sent to the owner of the dam by your Board on April 10, 1968. At that time, the owner was advised that if he did not plan to constructively use the dam or water power related thereto, the structure should be breached in such a way that no water would be stored.

At the time of the most recent inspection of the dam on September 26, 1968, the structure was noted to be in the same poor condition as previously reported. However, the pond formed by the dam was empty. Water was leaking thru the water wheel structure at a rate equal to the inflow of Chicopee Brook.

The bottom of the pond is in general, only from 1 ft. to 2 ft. below the crest of the dam and thus, even when the pond is filled to normal capacity, the quantity of water stored is negligible. The undersigned is of the opinion that this dam will fail sometime in the not too distant future, but that when it does fail, there will be little to no danger as a



# **TIGHE & BOND CONSULTING ENGINEERS**

result of the released water. If failure should occur during flood flow conditions, the failure would never be observed until after water in the stream receded to normal elevation.

I am of the opinion that the owner should again be advised of the condition of the dam and that he should notify you of what action he plans to take, if any, in connection with repairing and properly maintaining the dam or in breaching the structure.

## **D. Anderson Dam**

The embankment at this dam was in very good condition. It has been well maintained and has a very good turf cover. The downstream stone wall was in satisfactory condition. The toe area of the embankment was normal. It is wet in spots but the ground water is quiet and there is no soil movement.

The swale spillway located at the left end of the embankment is well shaped and properly maintained. It is free of brush and debris.

The stone masonry and concrete spillway structure was in satisfactory condition. The usual stoplogs were in place and water level in storage was at the crest of the stoplogs. The channel below the spillway and its related masonry were noted to be in fair condition.

Tree growth from the embankment has been removed where the trees, in recent years, have been growing quite large.

## **E. White Pool Dam**

This small dam is no longer active. A sizeable hole has been broken thru the concrete masonry wall forming this dam so that no water will be ponded.

The owner has abandoned the area for swimming and recreational purposes. A new conventional type swimming pool using Town water with a recirculated filter has been built off to the side of the pool formerly formed by the dam.

Since a sizeable hole has been broken thru the masonry wall forming the dam, since the quantity of water stored is negligible and, since the drainage area upstream is relatively small, there seems to be no

further need to conduct inspections at this small abandoned dam. Unless instructed to the contrary, no further inspections will be made at the abandoned White Pool Dam.

F. Ellis Mills Upper Dam

The stone masonry of this dam was noted to be in satisfactory condition. Abutments were o.k. Some of the joints between the stone blocks are open but the condition does not as yet require attention. The usual three flashboards were on the crest of the dam. Water level in storage was at the top of the flashboards. At the toe of the dam some of the large stone masonry blocks have been moved but this condition does not endanger the toe area from the overflowing water.

Both abutments of the dam were in satisfactory condition. The training wall and cap at the left abutment was in satisfactory condition.

G. Monson Associates Dam

This dam has been abandoned for many years and it receives no maintenance whatsoever. In spite of its age and lack of maintenance, the crest of the dam and the face are well aligned and in satisfactory condition. The joints between the individual pieces of stone masonry leak. However, the condition is not dangerous.

This dam stores no water whatsoever and, as existing, is nothing more than a waterfall in the stream valley. The pond volume has been filled up completely to the top of the dam with sand and gravel washed in from upstream by flood flows. The old pond area is now becoming overgrown with brush.

Though this dam receives no maintenance whatsoever and is a very old structure, its presence does not endanger persons and property downstream.

H. Monson Water Works Dam

This stone masonry and concrete dam was in satisfactory condition when inspected. Water level in storage was at the crest and no flashboards were in place. The toe area of the dam is in satisfactory condition. The stream bed below the dam has become filled up with gravel and sand as a result of storm water surface runoff from the vicinity of the Conant Brook flood control dam access road located upstream.

Guniting on the dam and abutments was noted to be satisfactory. The left abutment was o.k. and the concrete masonry training wall downstream thereof was in satisfactory condition. The earth fill at the left abutment was o.k.

The right training wall, downstream of the dam, was in good condition, as was the abutment itself and the earth fill behind the abutment wall. On the whole, the dam is in relatively good condition.

I. R.S. Sutcliffe Dam and Dike (now owned by U.S. Government)

This dam is now in very poor condition, it is quite dilapidated and the structure is failing to the left of the spillway where overflowing water has eaten into the dam. The dam must be repaired or the washout will become larger with each flood flow condition and eventually the entire pond will be released.

All large trees growing from the vicinity of the spillway and the dam embankment should be cut down.

The dike at the opposite end of the pond from the dam is in need of maintenance and attention. Large trees growing from the dike should be cut down.

There has been little or no maintenance at this dam during the past 5 or 6 years. With each passing inspection it has been noted that the dam is becoming more dilapidated. The time has now arrived wherein the dam must be repaired or it will be lost.

The office of the Corps of Engineers at Trapelo St. in Waltham should be notified of the condition of this dam.

J. Smith Pond Dam

The dike at this pond was in fair condition. The masonry of the headworks at the drain gate is spalled but satisfactory. The toe of the dike at the location of the breach which occurred in 1955 is wet but there is no movement to this water. The stone masonry wall forming the downstream face of much of the dike and situated to the right of the old breach was in satisfactory condition.

At the main dam, the earth embankment to the right of the spillway has become overgrown with brush and trees. All brush and tree growth occurring on the earth embankment should be cut down.

The spillway is in fair condition. The cemented boulder crest is becoming dilapidated but its loss and leakage at the crest will result in increasing the safety of the dam. There were no flashboards on the crest at the time of inspection and water in storage was overflowing the spillway crest.

The stone masonry of the basic dam was in fair condition. The toe area was satisfactory. There is some earth erosion occurring downstream of the dam spillway just to the left side of the spillway crest. Further erosion could be prevented by filling this area with heavy broken or field stone or by constructing a small and short training wall at the left end of the spillway.

It is recommended that the owner of the dam be advised of the necessary maintenance work.

K. Aldrich Dam

This small stone masonry structure, backed up with earth, leaks somewhat and leakage is sufficient to result in the pond being kept down to a level of about 12" below the spillway crest. Water seeps and flows through the earth fill back of the masonry wall and emerges through the wall from the downstream face at the toe of the wall. Brush and trees grow from the face of the wall and these will eventually cause leakage through the wall.

The wingwalls of the concrete culvert under the roadway just downstream of the small dam are badly eroded, are being undermined and are failing. This condition has been noted for some time in the past and has been reported by your Honorable Board to the Town of Monson. Water from the dam, after passing over the spillway, passes under Route 32 through the highway culvert. Though the wingwalls and culvert are indirectly a part of the dam structure in that they provide facilities for carrying the overflow away from the dam and under the highway, the wingwalls are not directly a part of the dam and are actually public property.

It would be advisable for either the Town or the Mass. Department of Public Works to do the necessary maintenance work at the spillway of this small dam so as to protect the culvert and the culvert inlet passing

under the highway. Also, brush and small tree growth occurring from the stone masonry at the dam should be cut down and future regrowth discouraged.

L. C. P. Bradway Dams

Lower Dam This dam has been breached for many, many years. The breach still exists. It is wide and deep and can satisfactorily and safely pass flood flows without spilling water.

Upper Dam The embankment at this dam is somewhat rough in shape and large trees grow from the embankment. However, the embankment is quite wide for its shallow height and the trees growing from the embankment, as well as the rough shape, do not endanger the dam. Any uprooting of a tree would not result in a wide breach across the embankment.

The spillway was clear and free of any debris. Water level in storage was at the crest and there were no flashboards in the spillway. Water passing through the spillway approach channel trickles into the stone masonry of the dam at the spillway area and then seeps down through the rock fill to emerge downstream at the toe and face of the dam. The downstream face of this earth embankment dam is a field stone masonry wall.

The small channel cut across the top of the embankment a few years ago still remains plugged in a satisfactory manner.

M. W. R. Elliot Dam

This dam has not come under County jurisdiction for a number of years. It has been examined from time to time to be certain that its status does not change. The pond formed by the dam is fed by a pipeline extending from the main stream into the artificial built pond off to the side of the valley of the stream. A discharge pipe from the pond extends back into the stream and the size of this pipe is larger than the size of the inlet pipe.

A very small masonry and stone diversion dam is in the bed of the main stream just upstream of the artificial pond. This small dam ponds very little water; it forms nothing more than a water hole in the brook.



Since the structure has not been under County jurisdiction for a number of years and, since no changes have been made for many years, periodic inspections at this site will cease unless the undersigned is directed to the contrary.

N. Springfield Sportsmens' Club Dam

This dam has been well maintained during this past year. New spillway side walls of concrete and stone masonry have been built. The spillway itself has been cleared and greatly improved. The old iron screen is still in place at the end of the spillway.

Brush growth has been cut from the top of the dam embankment. The toe area was satisfactory. The face of the downstream stone wall is rough but the wall is o.k. Seepage occurs through the wall but it seems to have been reduced in quantity.

On the day of inspection water level was at the crest elevation of the spillway notch. No stoplogs or flashboards were in the spillway.

The swale spillway at the right of the dam is in fair condition. It was free of debris and brush growth.

Conditions at this dam are the best that have been noted in many years.

O. Bumstead Dam

This is a small field stone dam backed with earth. The dam is very rough in shape but it is quite wide in relationship to its shallow height. Tree growth is occurring from the stone masonry wall forming the main portion of the dam. The dam is so small in height that the growth of trees does not endanger the structure. The spillway notch was in satisfactory condition. There were no flashboards on the crest and the spillway was free of any debris. Water level in storage was at the crest of the spillway.

As reported in previous annual reports, the pond volume at this dam is now very small, the majority of the volume being taken up with silt and sand washed in from downstream. It is estimated that the maximum water in storage does not exceed 100,000 gallons. The height of the dam is only about 5 feet. The drainage area is less than one-quarter of a square mile.

In view of conditions at this dam and the fact that it no longer comes under County jurisdiction in accordance with the provisions of Chapter 253 of the General Laws, routine inspections will no longer be made at this site unless directed to the contrary by your Board.

P. Jurczyk Lower Dam

The embankment of this dam was in very good condition. It is well shaped and is covered with a good growth of turf. The toe area was noted to be dry. At the right side of the dam near the point where the dam joins the natural valley slope, the downstream face of the embankment and the toe area had been recently treated with new loam and seed. There were a few small discolored damp areas on the new loam. These could have resulted from minor seepage or a recent watering of the surface. The undersigned dug into one of the damp spots but found no standing water.

The spillway was in very good condition. As reported recently, the spillway side walls have been raised to the proper elevation. Normal flashboards were on the crest and water level in storage was at the top of the upper flashboard.

In my last letter-report on this dam dated July 26, 1968, it was pointed out that to the right of the spillway, the earth embankment had not been raised to meet the grade of the increased spillway wall elevation. As of the inspection on September 17, 1968, the embankment had been raised and the dam is now in good condition. The dam embankment and the spillway now provide the proper freeboard as required on the construction drawings.

Q. Jurczyk Upper Dam

The embankment was o.k. insofar as shape and slopes are concerned. The upstream face and the road extending along the top of the embankment were satisfactory. On the downstream face, the owner should develop a good growth of turf. Trees growing from the downstream face of the embankment and all brush growth thereon, should be cut down and regrowth discouraged. The proper surface cover for the downstream face of this embankment, in all areas other than stone fill areas, would be a good thick and well maintained turf.

The spillway inlet shaft was o.k. Water level in storage was at the crest of the spillway. The spillway tube was satisfactory except as noted hereinafter. The undersigned walked through the entire length

of the spillway tube and examined the joints and the interior surface with a hand light. Five joints are leaking and there is movement of fine soil through some of the joints. These joints where soil is moving must be plugged and the soil movement controlled.

The toe area of the dam embankment was o.k. except for brush growth occurring from the stone fill.

Construction work at the right of the dam, downstream of and at the toe area, has apparently been abandoned and no progress was noted at all during this year.

It is recommended that the owner be advised of the necessary improvements and maintenance recommended at this dam.

R. Paradise Lake Dam

The embankment forming this dam was noted to be in satisfactory condition. The downstream stone masonry wall is o.k. The toe area at the wall was dry. Though the embankment is quite sandy and there is no surface turf, this portion of the dam is satisfactory.

The spillway notch itself was o.k. and there was no stoplog in the spillway. Water level was down about 6" from the crest of the spillway.

An increased amount of seepage was noted at the bottom of the spillway. A considerable quantity of water emerges in the spillway channel just downstream from the sloping portion. Leakage has been noted here in the past but the amount of leakage noted this year seems to be occurring at a greater rate. The leakage should be investigated and eliminated or protective measures taken to prevent any damage to the spillway and the dam as a result of this flow of water.

The floor of the spillway chute just above the sloping portion seems hollow underneath when the floor is hammered or stomped on. It is possible that the leakage which is occurring under the spillway section is removing soil from under the paved floor of the spillway causing the formation of voids.

It is recommended that the condition of the spillway be investigated and repairs made where necessary.

S. Phillips Dam

This dam has been breached for many years. When last inspected, the breach was still wide and deep and could safely pass flood flows. The area at the dam and at the old pond is now heavily overgrown with brush and small trees. It is evident that the owner will not rebuild the dam. Since no water can be stored at this old breached structure, it is recommended that it be dropped from the inspection list of dams in Monson.

T. Reynolds Dam

Conditions at this dam remain unchanged. The pond formed is not directly in the valley of the brook but is off to the side and is fed by the diversion of water from the brook to the pond at a point upstream of the pond. A pipe leading from the main brook carries water to the pond.

As existing, this structure still does not come under County jurisdiction. The main flow of the brook passes around the artificial pool.

U. Liscek Dams

1. Lower Dam This small dam was found to be in relatively good condition. The turf was fair and the stone masonry walls, though cracked a bit, were satisfactory. There was very little toe seepage. Water level in storage on the day of inspection was about 9" below the spillway crest. No flashboards were on the crest. The swale spillway chute to the right of the dam was o.k.

This small dam impounds less than 100,000 gallons of water. The height of the dam is just under 10 feet above the bed of the brook at the downstream face. The depth of water is but about one-half of the height of the dam. The drainage area as determined from the U.S. Topographical Sheet is approximately six-tenths of a square mile. Loss of this dam would do no damage to persons and property downstream. The stream valley is uninhabited between the dam and Wood Hill Road below. The small quantity of water stored could be contained by the roadway embankment downstream and then slowly released by the culvert pipe under the roadway.

Since the dam impounds such a small quantity of water, is less than 10 ft. in height and has a drainage area of only slightly more than one-half square mile, the dam does not come under County jurisdiction and it is recommended that no further inspections be made.

2. Upper Dam The embankment at this dam was o.k. It is well shaped and has a good turf cover. No toe seepage was observed. The stone and concrete masonry forming the spillway was in good condition. Water level in storage was down about 3" below the crest of the spillway. No flashboards were on the crest.

Some seepage was noted at the back of the right spillway wall. This seepage emerges at the toe of the wall on the right side. There is no movement of fine grained material and no evidence of earth embankment settlement as a result of this seepage water.

As in the case of the Lower Dam, this Upper Dam does not come under County jurisdiction since the volume of water stored is only about 100,000 gallons, the height of the dam is only about 8 ft. and the drainage area is only in the neighborhood of one-half square mile. Loss of this dam would do no damage on property downstream of the owner for the same reasons as set forth hereinbefore in the report on the Lower Dam. It is recommended that no further inspections be made of the Upper Dam.

V. Dr. M. Schimmel Dam (formerly Brown Dam)

A new concrete cap has been placed on the upstream masonry wall along the length of the embankment. The spillway opening has been reduced in size as a result of the new construction. Should the spillway be unable to handle storm flow run-off, the dam could be topped by flood flows which would pass around the main portion of the dam on natural ground.

A new drawdown gate arrangement results in the partial blocking of the old spillway opening. The top of the dam embankment is being raised with sandy fill.

The volume of water stored at this dam is estimated to be in the range of 700,000 gallons. The height of the dam is about 5 ft. The drainage area is quite small, being in the range of less than one-quarter square mile.

Though this dam apparently would not come under County jurisdiction at the present time, it is inspected from time to time to be certain that it is not raised sufficiently to result in the storage of more than one million gallons of water.

W. Warren Platt, Jr. Dam (now Ricci)

This dam is in the same general condition as reported from time to time in the past. No changes have been made at the structure and the pond volume is full to the top of the dam with sand, silt and soil washed in from upstream. The area is becoming completely overgrown with brush and trees. No water whatsoever is stored behind this dam and the structure is now nothing more than a waterfall in the course of the brook.

X. Pulpit Rock Pond Dams

1. New Concrete Dam The dam itself is in satisfactory condition. The stoplogs in the two slots seem to have been improved in that there is now little downstream bending of the planks. The flashboards are still on the crest of the dam, and water level in storage was nearly up to the top of the flashboards.

The toe of the main portion of the dam at the bed of the stream is satisfactory.

The left grouted rock fill needs to be repaired at the bottom half just below the face of the dam. This repair work should be done with additional grouted stone fill or with poured in place mass concrete.

Both the left and the right concrete abutment walls are o.k. The heavy rock fill at the right abutment wall and downstream of the dam is o.k.

The footbridge leading out to the drawdown gate is quite flimsy and should be strengthened. All flashboards should be removed from the crest of the dam until after the spring heavy run-off occurs.

2. West Dam The owner of this dam began to comply with the directive of your Board as reported in my communication of September 5, 1968 relative to the removal of trees from the embankment of the dam. However, as of my inspection on September 26, 1968, no



additional work had been done during the month of September. Less than one-half of the trees growing from the embankment have been cut down. The owner should comply with your directive and remove all trees after which a good growth of turf should be developed.

One flashboard is on the spillway crest. The spillway itself was found to be satisfactory. Some concrete erosion noted previously at the bottom of the left spillway wall still exists but the condition is not bad enough as yet to require attention. The spillway chute itself, the grouted stones and paved concrete floor are o.k. No evidence of undercutting was noted at the end of the chute.

3. Small Dam This dam is quite dilapidated, it receives no maintenance and in general, is in poor condition. The dam is a combination of field stone and concrete backed with an earth embankment fill on the water side. Two spillway notches exist through the dam and there were no flashboards in either notch. The spillway opening nearest to the roadway is plugged with planks, a wooden platform and miscellaneous debris. The spillway opening should be cleaned. Trees should be cut down along the entire length of the dam embankment so that root damage will not occur to the stone masonry portions of the dam.

The pond formed by this dam is quite small and it does not endanger persons and property downstream. However, it could wash out the access roadway leading to the homes around the northerly portion of the lake and, if the washout occurred at a time when a vehicle was passing the roadway, persons might become injured.

In the opinion of the undersigned, the owner should either maintain this small dam in a proper manner or breach the dam so that no water will be ponded.

Y. Dr. Mace Dam

This structure is still breached as a result of the flood flow of August, 1955. The breach is wide enough and deep enough to safely pass flood flows.

This dam has now been breached for 13 years and the breach is so wide and deep that the cost to reactivate the dam would be quite large. Also, the entire area is now overgrown with brush and trees. Since

no water is stored at this old dam and since the breach can safely pass flood flows, it is recommended that no further inspections be made and that the dam be dropped from the list for periodic reports.

Z. Shepard Dams (formerly Dr. Sanderson Dams)

1. Upper Dam This dam has been improved somewhat since the time of the last inspection. The trench dug through the dam embankment as a temporary spillway while the main spillway was being improved, has now been plugged with a concrete headwall and packed earth. Through the old trench and the headwall, an 18" diameter asbestos-cement pipe has been laid and functions as an overflow to hold the water level in storage at just below the elevation of the main spillway crest.

The old stone spillway has been greatly improved with a new concrete cap extending for the full width and length of the spillway. It has curb side walls. It measures 8 ft. in width and 33 ft. along the crest of the construction which is the narrowest point. The new concrete flares outwards in the direction of the pond. The old stone portion of the dam is now fairly watertight and is in very good condition.

The old canal is operating and passing water around the right side of the spillway.

No provisions have been made for flashboards on the improved spillway.

The pond is still quite shallow. It is overgrown with brush and trees. It is doubtful if the average depth of water over the entire pond exceeds 2 feet.

The earth embankment is covered with tree growth but this growth is not dangerous since the pond volume is small and thus very little water is stored.

2. Lower Dam The small concrete spillway has been improved by the addition of concrete. The stoplog opening has been narrowed. This has resulted in improving the slots which hold the stoplogs, and leakage around the old and broken concrete slots has now been stopped.

No seepage was noted behind the left wall of the spillway nor was any observed emerging through the left dry field stone masonry spillway bridge abutment. The last repair job to stop seepage seems to be functioning very well.

The grouted stone flood flow spillway is wearing very well. Road pavement across the dam and flood flow spillway is o.k. Large boulders are still existing along the side of the roadway at the flood flow spillway location but they seem to have been reduced slightly in number.

AA. Lunden Dam

The embankment is in excellent condition. The turf cover over the entire embankment and in the flood flow spillway is excellent. The left toe area is wet as usual. This area has always been swampy but there is no apparent movement of water. The toe of the embankment at the central section and at the right portion of the dam is dry.

The emergency spillway is well shaped and contains no debris or brush growth.

The tube spillway is in good condition. No debris is in the tube nor in the vertical shaft. Water level in storage was at the crest of the shaft spillway.

This dam is always in excellent condition and is exceptionally well maintained.

BB. Q. E. Bradway Dam

The embankment forming this dam was found to be in good condition. It is covered with a good growth of turf and is fairly well shaped. Some areas of both side slopes are rough as a result of cattle walking along the slopes. However, the condition does not endanger the dam in any way. The toe area along the embankment was normal. It is wet in places but there was no moving water noted.

The tube spillway was in satisfactory condition. The vertical shaft and the pipe through the embankment were clear and clean. Water level in storage was down a few inches from the crest of the shaft. The trash shield at the spillway inlet was o.k.

The flood flow spillway was in satisfactory condition and the turf cover is improving with each passing inspection.

This dam is always well maintained by the owner.

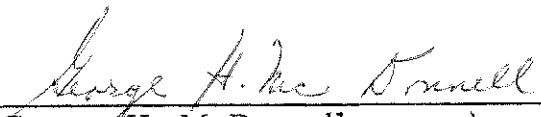
CC. Dr. J. V. Greany Dam

The embankment at this very small dam is o.k. The sloping face on the pond side was o.k. It has a stone paving cover. Water level in storage was low. The spillway channel was satisfactory and was clear of any debris. The pond appears to have been enlarged somewhat by excavation. Some brush growth is occurring on the embankment but it is not thick at present. This dam is considered to be in good condition.

DD. Conant Brook Flood Control Dam

The embankment of this dam was in good condition. The gravel roadway on top of the embankment was o.k. The spillway was satisfactory. The pond behind the dam was empty as per normal operation. The dam is functional and can operate to control and reduce flood flows in the brook valley.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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& BOND**

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CD Monson  
October 22, 1969

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

During the year 1969 inspections have been made from time to time of the various dams situated within the Town of Monson. Inspections recently completed have now concluded the inspection routine in Monson, and every dam located within that community, coming under County jurisdiction, has now been inspected at least once during the present calendar year. The following is a report on the general condition of each of the dams and dam sites situated within the Town of Monson.

A. Church Manufacturing Company Dam

The dam itself is in good condition. On the day of inspection water in storage at the dam was passing over the crest. There were no flashboards on the crest. The growth of vegetation noted and reported from time to time in the past at joints and cracks in the masonry has been controlled and cut down.

The toe area in the stream bed is o.k. The right abutment and its related flood flow training wall are o.k.

The left abutment and the drawdown gate proper were both noted to be satisfactory. A sizeable leak discharges from the base of the left wall of the gate structure just down stream of the face of the drawdown gate itself. No other seepage of any quantity occurs from the left concrete and stone masonry wall. The leak is the result of pond water passing around the left abutment in the natural sandy soil which exists between the abutment and the paving of the

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adjacent State Highway, Route 32. Leakage has occurred in this area, particularly since the flood of August 1955 when the material that was back-filled in a wash-out was of a pervious and gravelly nature. The leakage was observed for a few minutes and no grains of soil were observed being discharged with the water. A careful examination of the surface of the ground between the abutment and the road indicated no surface settlement.

The surface of the ground adjacent to the left abutment has been paved with type-I material and surface drainage is directed over the abutment wall below the dam. Also, surface drainage paving has been placed from the southern end of the parking lot across road to and over the abutment wall. As a result, no surface water run-off can now soak into the ground thru the coarse soil behind the abutment. In the opinion of the undersigned, the leakage does not endanger the dam.

The owner should observe the area of the left abutment from time to time and if any settlement of the surface soil begins to occur, corrective steps should be taken to prevent any major settlement or wash-out of the earth area between the left abutment and the highway.

In the opinion of the undersigned, the dam itself is safe.

B. Moulton-Chicopee Brook Dam (now George Calkins)

This dam is still in very poor condition. The stone block masonry forming a portion of the left and the right sections of the dam is in fair to poor condition. Stone block masonry of the right section located adjacent to the central concreted stone masonry portion of the dam is in poor condition and some of the stone blocks are no longer supported since underlying blocks have been washed away.

The abutment area to the right of the dam is in poor condition and large trees are growing from the abutment. Loss of any of these large trees by uprooting, as a result of wind action, could cause a breach of the abutment and loss of the stored water.

The left abutment is in poor condition. The old turbine pit passes water thru the structure via the inlet rack and missing planks on the downstream side.



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In the opinion of the undersigned this dam could fail in the not too distant future. However, failure of the structure would not release a great deal of water downstream. The bottom of the pond is, in general, only from 1 ft. to 2 ft. below the crest of the dam. In fact, at the present time much of the pond area is now an island overgrown with weeds and miscellaneous vegetation. The quantity of water stored behind the dam is negligible.

If failure of this dam should occur during flood flow conditions, the failure would not be observed as a wave of water moving down stream. Any increase in flow from released water would be but a very small percentage of the flood flow quantity.

The new owner of the dam should be advised of its condition. He should either make the dam safe by doing the necessary maintenance and reconstruction work or he should breach the structure by removing a major portion of the masonry dam from the stream bed.

Though in the opinion of the undersigned, the dam will probably fail in the not too distant future, it will not cause any flooding of consequence downstream. The only danger would be to persons who may be in the stream bed directly below the dam at the time of failure.

C. Anderson Dam

The embankment at this dam was noted to be satisfactory. It is well maintained and covered with a fair to good growth of sod. All brush growth and weeds have been cut down. The downstream stone wall is in fair to poor condition. In certain areas it has failed but as yet these failed sections of the wall do not endanger the dam.

The toe area of the embankment was found to be normal and no dangerous movement of seepage water was observed.

The swale spillway to the left of the embankment, built on natural ground, was clear of any debris and growth.

The masonry spillway had normal flashboards on the crest and water level in the pond was at the elevation of the upper flashboard. The masonry of the spillway is cracking at the front corner on the left side, downstream face. The left abutment area shows evidence of leakage on the downstream face and water erosion problems are beginning

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to develop. This condition is satisfactory for now but at the time of the inspection in 1970, the spillway must be examined carefully for any further cracking or erosion of the face of the masonry.

The owner of the dam, Mrs. William Anderson, was present following the inspection and the undersigned discussed the condition of the dam with her.

In the opinion of the undersigned the dam is safe and satisfactory for the present time.

D. Ellis Mills Upper Dam (Zero Manufacturing Dam)

The stone masonry forming this dam was found to be in satisfactory condition. The normal three flashboards were on the crest of the dam and water level in storage was at the top of the upper flashboard.

Abutment areas were okay. The flood training walls at both abutments were in satisfactory condition.

The toe area of the dam, in the bed of the stream, is satisfactory. Some of the large stone masonry blocks have been moved from the toe area at the left of the dam by flood flows. This condition does not appear to be causing any erosion in the bed of the stream. In the opinion of the undersigned this dam is safe.

E. Monson Associates Dam

This old stone masonry dam has been abandoned for many years and receives no maintenance whatsoever. In spite of its age and lack of any maintenance, the crest of the dam and the face of the structure are well aligned. Joints between the individual stone blocks do leak but this condition does not endanger the structure.

Most of the normal flow of the stream passes under the spillway crest capstones.

No water is stored by this dam since the entire pond volume has been filled in with sand, gravel and debris washed in from upstream. The dam now is nothing more than a water-fall in the stream valley. Loss of the dam would release little to no water downstream. Though the structure is somewhat dilapidated, and receives no maintenance whatsoever, in the opinion of the undersigned it does not endanger persons and property downstream.

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F. Monson Water Works Dam

The crest of this masonry dam was in satisfactory condition. It is on good grade and good alignment. No flashboards are on the crest and water level in storage was about 1" above crest elevation.

The toe area in the bed of the stream was o.k.

The Gunitite covering on the downstream face of a portion of the masonry is beginning to deteriorate. This deterioration is typical and the condition does not endanger the dam.

Seepage was observed at the right side of the dam at the right abutment face just back of the downstream concrete training wall. The seepage appeared to be coming thru the abutment from the reservoir. The condition is okay for the present but should be watched for any increase in quantity of flow or for the occurrence of any settlement on the surface of the ground at the right abutment area of the dam or behind the downstream training wall in front of the dam.

Each abutment of the dam consists of an upstream and downstream masonry wall filled between with earth. This earth fill was examined at each abutment and nowhere was there any evidence of settlement which might be caused by flow of water through and under the abutment.

In the opinion of the undersigned, the dam is safe and simply needs to be observed periodically for any evidence of increase in seepage at the right side or any settlement of earth at the right abutment.

G. R.S. Sutcliffe Dam and Dike (now U.S. Government, Corps of Engineers)

The dam has been repaired at the left of the spillway. Earth and stone fill has plugged the void previously reported. Brush and small tree growth has been removed from the embankment proper. The spillway, though somewhat dilapidated, was noted to be satisfactory. No flashboards were on the crest and water level in storage was at crest elevation. The toe area at the dam was satisfactory.

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The dike at the opposite of the pond from the dam was noted to be in fair condition. The rough downstream stone masonry wall was satisfactory. Some large tree growth is now developing on a portion of the embankment. In the not too distant future the large trees should be removed. A recommendation relative to removal will be made within a year or two.

The toe area of the dike is normal. Some seepage water is on the surface of the ground but there is little or no movement to this water. Conditions existing at the present time are similar to those observed in past years.

Though this dam and dike receive little maintenance, in the opinion the undersigned feels the structures are safe and in satisfactory condition for the present time.

H. Smith Pond Dam

The dike at the northerly end of the pond is in fair condition. The old stone masonry wall on the downstream side of the dike is in poor shape but serviceable. The central portion of the wall, washed out in the flood of 1955, has never been replaced. However, its absence does not endanger the structure. The toe area of the dike is wet but no water movement of any consequence was noted. The upstream concrete masonry wall of the dike at the old draw-down intake is satisfactory.

The sod cover on top of the dike area is fairly thick and suitable.

The earth embankment at the main dam should be cleared of all brush and tree growth. The embankment should be properly maintained and a good growth of turf developed over its entire surface.

The spillway is in fair condition. The concreted stone masonry crest is beginning to wear and erode. Loss of a portion of this crest will actually increase the spillway capacity and thus improve safety of the dam. No flashboards were on the masonry crest and water surface of the pond was a crest elevation.

The toe area in the brook just below the spillway is satisfactory. There is erosion occurring to the left of the spillway just downstream of the left abutment. This eroded area is in about the same condition as reported previously.

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The owner should place heavy stone riprap in the void to prevent extension of the erosion.

It is recommended that the owner be directed to properly maintain the dam embankment and spillway.

In the opinion of the undersigned, the dam will continue to deteriorate and become unsafe unless the recommended maintenance is accomplished in the near future.

I. Aldrich Dam

This small stone masonry structure, backed with earth, is in about the same condition as previously reported. The stone wall leaks on both sides of the spillway section at the downstream toe, adjacent to the culvert wingwalls. These are a part of the downstream highway drainage structure. This leakage consists of water passing thru voids of the stone masonry wall forming the basic portion of the small dam. As a result of this seepage and leakage, the water level in storage is below the crest of the dam.

Brush and tree growth is becoming quite thick.

The wingwalls of the concrete culvert which passes under the State Highway, just downstream of the dam, are badly eroded and are being undermined. This condition has been noted in the past and has been reported to the Town of Monson as well as to the Mass. Dept. of Public Works, Highway Maintenance Division. The undersigned also discussed the condition of these wingwalls with the Board of Selectmen following the inspection of the dam.

Though the dam is dilapidated and leaks, in the opinion of the undersigned, it is not dangerous to persons and property downstream. The highway embankment located a few feet below the small stone masonry and earth dam is many times larger in volume than the dam itself and is higher than the dam. Water passing over the small stone masonry spillway discharges directly into the opening leading to the culvert under the highway. Any loss of the dam would simply discharge water into the culvert under the highway. Because the highway embankment fill is at a higher elevation than the dam immediately upstream, no flood flow would result in the valley below the dam. In fact, the

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greatest quantity of water that would be discharged, would simply be the capacity of this small culvert pipe laid under the State Highway.

Since Town officials and State Highway Dept. personnel have been made aware of the condition of the wingwalls in the past, there seems to be no need to submit another letter of information to either the Town or the State.

J. C.P. Bradway Dam ( Mr. S.McGill, Summit Ave., Fort Washington, Pa.)

Lower Dam This dam has been breached for many years. The breach still exists and is wide enough and deep enough to safely pass flood flows without storing water.

Upper Dam The embankment of this dam is quite rough, receives little maintenance but is reasonably well shaped and fairly free of brush growth. The top of the dam embankment has a fair sod cover.

The downstream rough and dry stone masonry wall is in fair condition. The toe area of the embankment, just below the base of the wall, is relatively dry.

The spillway notch across the top of the dam embankment was noted to be o.k. Some leakage occurs thru the floor of the spillway just back of the stone wall. This leakage does not endanger the dam.

Five fairly large trees, two on the upstream portion of the spillway and three at the lower end of the spillway swale should be cut down and the root structure of each killed. These trees are becoming large enough whereby they will do damage to the embankment and the stone masonry. Also, any uprooting of the trees during a windstorm might contribute to breaching of the dam.

All large trees on the dam, especially at the front edge of the dam, adjacent to the stone masonry wall, should be cut down.

On the day of inspection, water level in storage was at the crest of the spillway. The spillway was free of any debris or obstruction. There were no flashboards on the spillway crest.



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In the opinion of the undersigned, the dam is safe at the present time. However, without maintenance as recommended hereinbefore, it is possible that the dam could become unsafe. The owner should be advised to maintain the dam as suggested.

K. Springfield Sportsmens' Club Dam

The fish screen on the spillway of this dam was quite dirty and plugged with debris at the time of the recent inspection. It should be cleaned frequently by maintenance personnel at the Sportsmens' Club property. The three railroad ties lying in the spillway, just under the footbridge, should be removed. In case of flood flow conditions, they may become caught in the spillway and as a result, act to block the flow of water in the spillway and reduce its capacity. These railroad ties apparently serve no purpose in their present position.

All tree growth occurring from the face of the downstream stone masonry wall and all regrowth in the form of brush along the top of the wall should be cut down and regrowth discouraged.

On the day of inspection, water level in storage was at the spillway crest. Improvements made to the spillway sidewalls are satisfactory.

The swale spillway at the right end of the embankment was noted to be o.k. It should be kept clear of obstructions and brush growth.

The toe area of the dam was in satisfactory condition. There is no erosion of any concern at the spillway or at the toe of the stone wall.

Some minor seepage was noted thru the stone wall near its base but the seepage was minor in nature.

In the opinion of the undersigned, the dam is safe. However, it must be maintained if it is to remain in a safe condition, and the recommended work as outlined hereinbefore should be done by early next summer at the very latest.

L. Jurczyk Lower Dam

The embankment of this dam is in very good condition. The toe was noted to be dry and the turf cover on the entire

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embankment, both sides of the spillway, is fair to good. On the pond side slope, the stone paved surface is in good condition.

There were no erosion areas, holes or soft spots on the embankment.

The spillway was found to be satisfactory. The normal flashboard was on the crest and water in storage was at the top of the flashboard. The concrete of the spillway, the side walls, as well as the floor, was o.k.

Some seepage was noted at the face of the left sidewall near the bottom of the wall and just downstream of the spillway. The seepage is very slight and is emerging thru a ratty section on the surface of the concrete wall.

In the opinion of the undersigned, this dam is in very good condition and is safe.

M. Jurczyk Upper Dam

The embankment at this dam is o.k. regarding shape and general condition. This roadway across the top is in satisfactory condition. Roadside berms are o.k. The paved waterway leading down to the upper pond at the right end of the dam is in need of repair. The bottom of the paved waterway is cracked and broken.

The upstream face of the dam embankment is satisfactory. The downstream face has had all large trees removed. The root growth should be killed and any brush or weed growth developing on the embankment surface should be cut down and regrowth prevented. A good turf cover should be developed on the downstream slope of the embankment.

The toe area was in satisfactory condition. The spillway shaft was o.k. No flashboards were on the crest of this vertical shaft spillway and water level in storage was at the crest.

The spillway tube was satisfactory. There was no debris in the tube. Many of the leaks previously reported at joints and at the handling holes have been plugged and conditions are now much better. If new leakage develops or old leakage recurs, control measures should be taken immediately.

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In the opinion of the undersigned, the dam is safe. However, the paved waterway should be repaired and the downstream surface of the dam should have a good growth of turf developed.

N. Paradise Lake Dam

The embankment of this dam is found to be satisfactory. The downstream stone masonry wall is in good condition and there was no toe seepage along the base.

The spillway concrete sidewalls were satisfactory. Sections of cut stone were noted lying beside the spillway channel to the right side of the spillway. Water was running thru the spillway. There were no stoplogs at the crest opening and water level in the pond was at crest elevation.

Minor cracks still exist on the floor of the spillway and these should be sealed. Any new cracks developing should be cut out, repaired and sealed as soon as they appear. Cracks in the floor of the spillway will result in water running thru the cracks and under the spillway causing undermining of the masonry. Any undermining observed under the spillway floor should be filled with a good, rich cement grout.

At the entrance to the spillway, on the left side of the spillway channel while facing downstream and at the shoreline, the stone masonry is badly eroded and should be repaired.

In the opinion of the undersigned, the dam is safe. However, if repairs and maintenance are not done, then the dam, particularly the spillway facility, will begin to deteriorate.

O. Phillips Dam

This dam was breached in the flood of 1955 and has been breached ever since. When last inspected the breach was wide and deep. It can safely pass flood flows without ponding water. The old pond area is now heavily overgrown with brush and small trees.

Earlier this year the undersigned conferred with the owner, at the owner's request, on the possible re-activation of the dam. The conference was held in the field at the site

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of the dam. The owner will give consideration to various methods discussed relative to rebuilding or replacing the dam with an entirely new structure and will then file plans and specifications for review.

P. Reynolds Dam

The conditions existing at this dam remain unchanged. The pond formed is not directly in the valley of the brook but is situated off to its left side. The pond is fed by the diversion of water from the brook at a point upstream of the pond.

As existing, this structure still does not come under County jurisdiction. The main flow of the brook passes around the artificial pool.

Q. Dr. Schimmel Dam

This dam is in the same general condition as noted a year ago. The spillway sidewalls at the end of the spillway floor, under the masonry bridge, are becoming somewhat eroded.

Water level in storage on the day of inspection was about one inch below the permanent crest elevation of the spillway notch. There was a plywood stoplog in the slots of the spillway notch and leakage of water under the stoplog apparently is holding the pond level low.

As reported last year, the volume of water stored at this dam is about 2/3rds of a million gallons, the height of the dam is low and the drainage area is estimated at less than one-quarter of a square mile. Thus, the dam does not come under County jurisdiction at the present time. It is inspected from time to time to be certain that it is not raised to a point whereby the quantity of water stored would exceed one million gallons.

Though the spillway facility is quite small and is further limited by the stoplog in the opening, there is a natural swale at the right side of the dam embankment wherein the end of the embankment and adjacent natural ground are at an elevation lower than the dam proper. Any increase in water level to a point where the pond elevation would be approaching the top of the dam, would result in the discharge of flood flow water around the dam on the lower natural ground.

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R. Warren Platt, Jr. Dam (now Ricci)

No changes have taken place at this dam and pond since the time of the last inspection. The pond volume is entirely filled with sand, gravel and soil washed in from upstream. The area is completely overgrown with brush and small trees. The dam as existing is nothing more than a waterfall in the course of the brook.

S. Pulpit Rock Pond Dams1. New Concrete Dam

The concrete of this structure was noted to be in satisfactory condition. The toe area in the bed of the brook was o.k. and there was no erosion of any consequence noted. Flashboards were still on the crest of the dam. The undersigned removed some of the boards at the left side and the owner should be directed to remove all of the remaining flashboards until after the spring flood flow.

The grouted stone riprap at the left is spalling and has eroded somewhat but it is in fair condition. Erosion near the base of the slope has not as yet extended to a point where repairs must be made in this area.

Both abutment areas of this dam were o.k.

The footbridge leading to the drawdown gate on the dam has completely deteriorated and the gate operating facility cannot now be reached except by walking on the crest of the dam. Thus it could not be reached when a sizeable flow of water is passing over the dam. Since the footbridge was a portion of the support facility for the gate operating mechanism, this mechanism no longer has proper support.

The owner of this dam should be ordered to repair the bridge and the gate operating mechanism without delay.

The rock fill at the right abutment was noted to be o.k.

2. West Dam

Trees and brush are still growing from the embankment which forms this dam. Brush is also growing in the spillway channel. The only trees that have been removed

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as a result of the previous directive are those trees on the sloping face of the dam towards the pond and a portion of those on the top of the embankment.

Stoplogs were on the crest of the spillway and water level in storage was at about the permanent crest elevation. The undersigned removed the stoplogs from the spillway crest. The owner should be directed to keep these stoplogs off the crest until after the spring flood flows.

Concrete erosion was noted at the base of the spillway sidewall but this condition is not bad enough as yet to require repair work.

The toe area of the embankment was relatively dry.

The owner of this dam should be directed to complete the removal of trees from the embankment and the brush growth from the spillway channel by the spring of 1970.

### 3. Small Dam

This dam is more dilapidated than ever. It receives no maintenance whatsoever. The dam is a combination of fieldstone and concrete backed with embankment fill on the water side. Two spillway notches exist thru the dam. No flashboards were in either of the notches.

The spillway opening nearest to the roadway is plugged with planks and a wooden platform as well as miscellaneous debris. This condition has been reported in the past and the owner does nothing about correcting the undesirable situation.

Many trees grow along the embankment of the dam and from the stone masonry wall portion of the structure. The trees should be cut down along the entire length of the dam embankment so that they will not further damage the embankment or cause displacement of the stone masonry.

As pointed out previously, the pond formed by this dam is relatively small and in general does not endanger persons and property downstream. However, it could wash out the access roadway leading to homes around the pond, situated just below the dam. If the washout should occur at a time when a vehicle is on the roadway in front of the dam, persons might be killed or injured and property damaged.



-15-

The small dam as existing is of no value to anyone and does pose some danger as just outlined. Since the dam comes under County jurisdiction, the owner should be directed to maintain this dam in a proper manner or the dam should be breached. It is recommended that if the owner does not rebuild this dam and maintain it properly by June 30 of 1970, the County will take action under the provisions of Chapter 253 to cause the dam to be breached. Also, if the recommended work at the west dam and at the new concrete dam is not completed by December 30, 1969, the draw down gate should be opened and kept open until the recommendations are complied with.

T. Shepard Dams

1. Upper Dam

This dam is in the same general condition as reported at the time of the last inspection except for the fact that the asbestos-cement spillway pipe is partly blocked with twigs and debris. The undersigned attempted to clean out the pipeline but it was not possible. Proper tools will be needed to do the work.

The earth embankment is in fair condition. There are trees growing from the embankment and adjacent to it. However, this tree growth does not endanger the dam. Some toe leakage was observed, particularly at the left end of the dam. No soil was being washed with the toe leakage.

The old stone spillway now improved with a new concrete cap was operating satisfactorily. It was clear of any debris, water in the pond was at the crest of the spillway, and there were no flashboards on the crest.

The old canal located to the right of the spillway is operating and passing water along the right side of the spillway.

This pond, though quite large in area, holds very little water and is overgrown with brush and trees. Much of the pond volume has been filled in with sand, gravel, soil and debris washed in from upstream by previous flood flows. It is doubtful if the average depth of water over the entire pond exceeds two feet.

-16-

2. Lower Dam

The road across the embankment is o.k. Large stones still exist as a highway guard fence at the emergency flood swale spillway. The swale spillway was satisfactory. Some brush growth is occurring from the grouted stone sloping portion of the spillway and this brush growth should be cut down and the root structure killed. If the brush is allowed to continue to grow, root structure will damage the grouted stone paving by cracking the concrete and lifting the stones.

At the concrete spillway adjacent to the roadway bridge, stoplogs were in the slots to the full normal height. Water level in storage was at the top of the upper stoplog.

Seepage is again taking place behind the left spillway wall. The seepage water can be observed emerging from the roadway bridge abutment and discharging into the stream. The point of discharge is near the base of the abutment near the upstream corner.

An examination of the embankment material in the area just behind the abutment wall shows that a cavity is being formed and, in the very near future, the surface of the ground will settle. In fact, the undersigned was able to find a sizeable cavity in one location by simply stomping the surface of the ground behind the abutment wall.

Leakage at this location has occurred in the past. Proper repairs have never been made. As long as conditions within the embankment provide for a path for water from the pond to the open stone masonry of the bridge abutment, soil will be washed out and settlement of the embankment will occur.

The area should be excavated again and the path of water plugged tightly with impervious material properly compacted. Once the underground waterway is cut off there should be no further problem with seepage and settlement with the embankment.

It is recommended that the owner be advised to make repairs behind the left abutment wall again and to be sure that the persons making the repairs are fully aware of the type of soil needed and the manner in which the repairs are to be made.

-17-

U. Lunden Dam

This dam is in excellent condition. The embankment is well shaped and has a good turf cover. There were no weeds or brush growing from the top or the water side slope of the embankment.

The flood flow spillway is clear of any debris and has a very good turf cover.

The toe of the dam is dry except at the left side. This area is always wet but it is o.k. The water seeps from the side hill below and to the left of the dam.

Some brush growth is developing on the downstream face and at the toe of the dam near the left end. This should be cut down in the coming year and any regrowth discouraged.

The undersigned met with the owner of the dam immediately following the inspection and he has already planned to remove all brush and tree growth this fall.

The spillway shaft and vertical tube were o.k. There was no debris of any kind within the tube spillway. Water level in storage was at the crest of the tube. The outlet stilling basin at the discharge end of the spillway tube was in good condition.

The undersigned always finds this dam well maintained. It is safe.

V. O.E. Bradway Dam

The embankment of this dam is in very good condition. The turf cover is satisfactory. The side slopes are rough because of grazing cattle walking along the dam. This condition does not endanger the dam.

There is no brush or weed growth whatsoever on the dam embankment. Toe seepage was observed to be normal.

The corrugated iron tube spillway was in good condition. It is clear of any debris. The vertical shaft spillway is o.k. and water level in storage was at the crest of the shaft. The debris catcher was operating satisfactorily. The discharge end of the tube was o.k. and there was no evidence of erosion on the ground at the end of the tube. Water level in storage was at the crest of the vertical shaft. No seepage was noted along the outside of the spillway tube.

-18-

The flood flow spillway was o.k. The turf cover is improving with each passing year. No debris was in the flood flow spillway.

The owner of the dam made the inspection with the undersigned.

In the opinion of the undersigned, the dam is safe.

W. Dr. J.V. Greany Dam

There was some seepage at the toe of the dam near the left end of the embankment. This is the area where the embankment has been repaired. Apparently, the embankment was dug out and then replaced to reduce seepage in this section of the dam. It appears as if the newly placed material is of a poor grade and has not been properly compacted. The undersigned observed large boulders, sticks and roots in the new embankment fill.

If seepage continues and as a result the pond is lowered during dry summer weather, the owner should dig out the area again, clean the soil down to the foundation of the dam, and then replace the soil in 6" horizontal layers, each layer thoroughly and properly compacted. No stones over 4 inches in size should be used in the backfill nor should there be any roots, logs or vegetation of any type whatsoever. The soil used should be an impervious material of either a clay or a hardpan nature. The most impervious of the soil should be in the middle third of the compacted repaired area while more pervious material could be used on the two outside slopes.

The spillway channel around the left end of the dam was operating satisfactorily. It was free of any debris.

In the opinion of the undersigned, the dam is safe. Though it does leak, the leakage is more of a nuisance nature in that the pond can be drained away during dry summer weather.

X. Conant Brook Flood Control Dam

The embankment and the rock paved slopes of this flood control dam were in very good condition. The road on top of the dam is o.k. and there was no evidence of settlement or cracking. Spillway concrete was in good condition. Water level in storage was at normal dry weather elevation.

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CD Monson

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The dam is functional and can operate to control and reduce flood flows in the brook valley below.

Respectfully submitted,

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George H. McDonnell  
County Hydraulic Engineer

a1

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Monson  
March 16, 1970

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Re: Pulpit Rock Dams - Monson

The undersigned has made a re-inspection of the three dams at Pulpit Rock Lake in Monson to determine whether the owner of the dams followed recommendations and instructions sent to him by your Board in your letter of October 22, 1969.

## New Concrete Dam

The owner did not remove the flashboards from the crest of the dam as directed in the first paragraph of your letter in the section relative to New Concrete Dam. Also, the footbridge leading to the drawdown gate and the gate operating mechanism have not been repaired and reconstructed as recommended. This work was to have been done last fall.

## West Dam

The trees growing from the embankment of the West Dam have not been cut. The owner has until the spring of 1970 to complete the recommended work on the West Dam. Since none of this work has been done throughout the winter, it is apparent that the owner must be directed again relative to the removal of trees from the embankment if the surface of the embankment is to be properly altered and maintained by this spring.

## Small Dam

The small dam is in the same condition as reported to your Board last October. The owner should be reminded of the requirement that the small

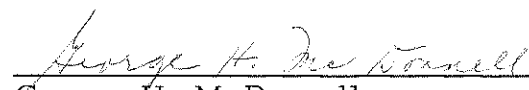


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& BOND** CONSULTING ENGINEERS

-2-

dam must be properly repaired and rebuilt or it should be breached no later than June 30th of this year.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

Monson, Chicopee Brook - Letters dated 1956 to 1964



1956 Reports

Problems with water level of Chicopee Brook.

City/Town	Monson
Dam	Moulton Dam
Name	Borgeson, Wilfred W
Name	Maynard, Alfred D
Streets	Brimfield Road
Streets	Chestnut Street
Streets	Route 32
Streets	Bethany Road
Water	Chicopee Brook

Dec. 19, 1956

Board of Selectmen  
Town Hall  
Monson, Mass.

Gentlemen:

In accordance with Chapter 253 of the General Laws of the Commonwealth of Massachusetts, the County Hydraulic Engineer has made inspections of various dams throughout the Town of Monson. In his report he has noted that on Route #32 at the location of the small pond to the west of the roadway just upstream from the Moulton Dam on Chicopee Brook, the spillway for the small pond is thru a culvert having an opening protected with a horizontal bar rack. The spacing of the bar rack is quite fine and the rack itself could probably result in causing an overflow of pond water onto the roadway in time of heavy storm. Our engineer has pointed out the advisability of providing a better inlet arrangement at this culvert spillway in order to prevent plugging of the inlet by debris.

We are passing this information on to you for your consideration and action if the maintenance of this culvert and its inlet comes within your jurisdiction.

If you desire any further information on this matter, please do not hesitate to call upon us.

Very truly yours,

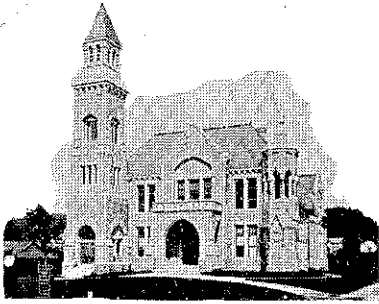
BOARD OF COUNTY COMMISSIONERS

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GHM/f



# SELECTMEN and BOARD of PUBLIC WELFARE

Memorial Town Hall



Monson, Massachusetts

December 26, 1956

Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

We are in receipt of your letter of December 19, 1956 regarding the culvert under-neath Route 32 and the Moulton Dam located just westerly of Route 32.

Please be advised that the jurisdiction of the construction and maintenance of this culvert is under the supervision of the Massachusetts Department of Public Works, F. W. Guerin, District Highway Engineer, 403 Belmont Street, Worcester, Massachusetts.

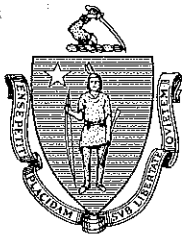
We suggest that the information be forwarded to his office so that he will be aware of the condition and may take steps to remedy it. As you may know, in this particular spot the road-way was washed out during the flood of August 1955.

Very truly yours,

*Fredrick J. Sullivan, Jr.*  
*Fredrick J. Riesel*  
*Frank Carter*  
BOARD OF SELECTMEN

FJS:l

Copy of this letter mailed to George H. McDonnell,  
County Hydraulic Engineer, on January 4, 1957.



*The Commonwealth of Massachusetts*  
*Department of Public Works*

DISTRICT #3 OFFICE  
403 BELMONT STREET, WORCESTER 4

January 11, 1957

MONSON

Board of County Commissioners,  
Hampden County Court House,  
37 Elm Street,  
Springfield, Mass.

Gentlemen:-

This will acknowledge receipt of your letter to me dated January 9, 1957 having to do with a spillway located at a small pond upstream from Moulton Dam on Chicopee Brook in Monson, and I beg to advise that I will have this matter investigated and will submit a report to you on this matter at a later date.

Very truly yours,

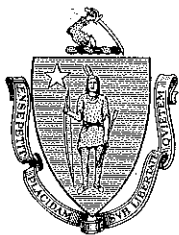
*F. W. Guerin*

FWG:Q  
C-FFD

F. W. Guerin  
District Highway Engineer

Received in Hampden Cty Comms' Office on Jan. 14, 1957.

Copy of this letter sent to George H. McDonnell, County Hydraulic Engineer, on January 15, 1957.



# *The Commonwealth of Massachusetts*

## *Department of Public Works*

January 29, 1957

DISTRICT #3 - 403 Belmont Street  
Worcester, Massachusetts

MONSON

Board of County Commissioners  
Hampden County Court House  
Springfield, Massachusetts

Gentlemen:-

Under date of January 9, 1957 you wrote this office pertaining to condition at culvert that crosses the State Highway on Route 32 at a location of a small pond emptying eventually into Chicopee Brook.

This culvert is located at Station 12+66 on the Palmer to Monson State Highway and consists of a 5x5 stone box extended on the easterly side with a 5x5 concrete box, on the westerly side by a 5x5 concrete box and concrete spillway. The opening of the spillway is covered with a 2" iron grating.

After checking we find that the location of this spillway is outside of the old county layout and also the State Highway layout which is inside the county layout. A plan is herewith attached which shows these conditions.

Mr. Fred Sullivan, Chairman of the Board of Selectmen was contacted and the situation explained to him. He agrees that the source of the trouble is on private property and beyond the jurisdiction of this Department.

There is no doubt that the present grating is insufficient and that it will clog very easily, for that matter the first time it was looked at considerable brush and debris was clogging the opening and yesterday when we visited the site some one had removed the debris and the grating in order to give a free flow for the water.

Mr. Sullivan stated that he would take this matter up with his colleagues on the Board and also with your Board as to the proper method of handling this matter.

Very truly yours,

*F. W. Guerin*

F. W. Guerin  
District Highway Engineer

FFD-W  
C-FFD

A copy of this letter was sent to George H. McDonnell,  
County Hydraulic Engineer, on January 31, 1957.



Chestnut St.  
Monson, Mass.  
Nov. 28, 1959

County Commissioners  
Hampden Court House  
37 Elm St.  
Springfield, Mass.

Dear Sirs:

I would like to know if your office has a voice in matters pertaining to water ways, such as streams and ponds.

I own land along the Chicopee Brook in the vicinity of Chestnut Street bridge. During rain storms, the run off under this bridge is much slower than formerly, thereby, creating flood nuisance that never existed before. This is due to a condition created about 1/4 mile down stream from Chestnut Street bridge at William C. Moulton's pond situated along the east side of Palmer Rd. (Route 32), formerly known as Days Pond.

A few years ago Mr. Moulton earthy filled in the Chicopee Brook where it entered the south end of pond, thereby changing its course, the new course of brook is much smaller, this creates a stoppage at times of freshets, and also affects the flow under Chestnut St. bridge. Mr. Moulton has also earth filled 1/4 or better of his pond, the fill is the present site of Monson Repair Shop, Palmer Road, and also the site of Allen B. Robbins Trucking. (At the present time, they are continuing to fill in this pond.) This fill also helps to retard the flow of water under Chestnut Street bridge.

Mr. Moulton has also raised his spillway higher by building a concrete wall about 16" high on top of spillway, and about eighty (80) feet long. Dropping this spillway to where it belongs would greatly increase the flow capacity of water at Chestnut Street bridge.

I am the owner of a house situated close by this Highway Bridge. I believe a heavy rain would cause much damage to the bridge and Chestnut Street, and also would ruin my house and lot.

For several years, Mr. Moulton has kept the water gates open most of the time, I believe due to repairs of spillway.

At present, when pond is full of water, and we have medium heavy rain, Chestnut Street bridge just barely takes the water flow. I have lived here over fifty years, and know the water capacity at this bridge has been reduced greatly, due to conditions described in this letter.

It seems to me that your office could take steps to remedy this situation.

I will appreciate hearing from you.

Very truly yours,

A handwritten signature in cursive script that reads "Alfred W. Borgeson". The signature is fluid and extends to the right.

Alfred W. Borgeson

AWB:M

Copy of this letter sent to Mr. George H. McDonnell,  
County Hydraulic Engineer, on November 30, 1959.

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Monson  
Dec. 18, 1959

Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Reference is made to a communication dated Nov. 28, 1959 and sent to your Board by Mr. Alfred W. Borgeson of Chestnut St., in Monson, Mass. Mr. Borgeson has been concerned recently over filling that has been done in the low land and bed of Chicopee Brook, as well as the fact that Mr. Moulton has activated his dam on Chicopee Brook, just upstream from the Church Mfg Co. pond.

I met with Mr. Borgeson on the afternoon of Dec. 17, 1959, and inspected the site in the field in his presence.

Mr. Borgeson lives on Chestnut Street, just to the east of the railroad tracks and Chicopee Brook. Near his home, Chicopee Brook passes under Chestnut Street. Mr. Borgeson claims that the normal level of Chicopee Brook has been raised and pointed out to me certain filling that has been done downstream of Chestnut Street and upstream of the Moulton dam. Apparently, this filling has all been done on property of Moulton and, much of the filling has been done some years ago.

The bed of Chicopee Brook has been shifted to the east but, this shift has apparently been made entirely on property of Moulton.

In recent years, the Moulton dam has been inactive and water of Chicopee Brook has passed thru the dam in the wheelhouse pit. Consequently, water level in the brook was low and any effect of the filling was not noticed upstream.

I pointed out to Mr. Borgeson that the work Mr. Moulton had done in connection with relocating Chicopee Brook and filling the low land was a matter that did not and, according to the law, could not come under County control. I pointed out to Mr. Borgeson that the problem at hand was one having to do with a waterway above a dam and consequently, any control would come thru

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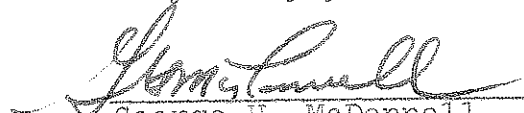
2.  
CD Monson  
Dec. 18, 1959

the Waterways Division of the Dept. of Public Works, Commonwealth of Massachusetts. I suggested that he write to the Waterways Division and also that he discuss the matter with the Board of Selectmen. I pointed out to Mr. Borgeson that any increase in water level that might subject property to flooding in time of storm or might endanger culverts and bridges could only come under your control when a dam is involved and the danger exists downstream due to the possible breaking of the dam.

I inspected the dam in the presence of Mr. Borgeson and pointed out to him that I would follow up the inspection of this dam in connection with a determination as to its safety and operation. I also agreed that I would determine whether or not the water level as ponded now by the dam was the same as the water level ponded years ago at this dam, when the water power was in use. A report on this matter will be submitted to you when I finish my investigation of conditions at the Moulton dam.

I am enclosing, for your consideration, a letter that could be sent to Mr. Borgeson, if you concur in its contents.

Very truly yours

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb  
enc.

Dec. 23, 1959

Mr. Wilfred W. Borgeson,  
Chestnut Street  
Monson, Mass.

Dear Mr. Borgeson:

Thank you for your letter of Nov. 28, 1959, pertaining to the problem of water level on Chicopee Brook, in Monson. The County Hydraulic Engineer has reported to us in connection with his findings in Monson and his conference with you, on the afternoon of Thursday, Dec. 17, 1959.

Under the provisions of the General Laws of Massachusetts, the County Commissioners can act when a dam forming a pond is in a condition whereby persons and property downstream are endangered thru the possible failure or breach of the dam. Matters having to do with the filling of a stream, the changing of the direction or location of a stream and, dumping into a stream do not come under County control.

In many instances, problems of this type do come under the control of the Division of Waterways, Department of Public Works of the Commonwealth of Massachusetts. Also, if municipal property is endangered, due to flooding of bridges or culverts, it is possible that Town authorities can take action where necessary to protect the public property.

Based upon the report submitted by the County Hydraulic Engineer, the only action our Board is empowered to take is to determine the safety of the dam involved and make recommendations to the Owner for improvements in connection therewith. If the dam endangers persons and property downstream, we can then act, under the provisions of the General Laws, to require the necessary repairs be made. However, anything that may be required at the dam apparently will not solve your problem of filling in the brook and changing direction of the stream. If the dam downstream is found to be unsafe, then action can be taken to cause the pond to be drained. However, if the owner complies with the recommendations of the County Hydraulic Engineer as approved by our Board, then that owner has the right to maintain and operate his dam.

I would suggest that if you do contact the Waterways Division

2.  
Dec. 23, 1959

of the Commonwealth or the Board of Selectmen at Monson, that you mention to them of your meeting with the County Hydraulic Engineer. I know he would be pleased to confer on the matter with the Town authorities or representatives of the Division of Waterways if they desire a conference on the matter.

This Board will be pleased to assist you in any way possible and will direct the County Hydraulic Engineer to advise you and meet with you as necessary insofar as the County has jurisdiction under your problem.

Very truly yours

BOARD OF COUNTY COMMISSIONERS

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GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

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TEL. JEFFERSON 3-3991

CD Monson

September 2, 1964

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned received a request from Mr. Alfred D. Maynard of Monson to examine conditions in a small brook that discharges into Chicopee Brook adjacent to Chestnut Street in the Town of Monson. The brook has three main branches that drain a portion of the westerly slopes of East Hill south of Brimfield Road. The three branches of the brook join together east of Bethany Road and the single main stream formed then passes under Bethany Road in a 5 ft. culvert and a short distance downstream thru a 4 ft. culvert adjacent to property of Maynard to discharge into Chicopee Brook.

Mr. Maynard has been concerned over the fact that in recent weeks, and for the first time in his memory, no water has been flowing in the brook on or adjacent to his property. On investigating conditions upstream, he found that the brook is being diverted from its natural channel into a man-made swimming and recreational pool on property of a landowner just above Bethany Road. The pool has been excavated in what is apparently a pervious sand and gravel. The full dry weather flow of the brook is diverted via a plastic pipeline to the pool and the pool, though it has an overflow pipe leading back to the brook, has never filled up and has apparently reached a point of stabilization where the quantity of dry weather inflow equals the quantity of seepage into the ground. In short, the user of the water in the brook upstream of Mr. Maynard is making use of all of the water on his property and is not returning any of it to the brook.

Mr. Maynard felt that the matter might be one coming under County jurisdiction and he requested that action be taken, if possible, to require the upstream landowner to return the water to the brook under the usual riparian rights wherein water used by an upstream landowner is generally returned to the stream undiminished within practical limits in quantity or quality.

I pointed out to Mr. Maynard that since the pool involved is an artificial pool and has been excavated outside of the brook proper, the pool thus formed does not come under County jurisdiction. The only part of an installation of this sort that would come under County jurisdiction would be the diversion dam in the main brook.

I observed the diversion facilities in the field and in my opinion, these facilities do not constitute a dam.

The land owner diverting the water has constructed an intake box in the brook and has located it between boulders in such a way that the low flow of the brook is diverted into the box and then a plastic pipeline carries this flow off to the pool located on the left side of the brook and downstream of the diversion point. The diversion box and facility does not dam up the brook and in fact, it does not add to the unevenness of the brook bed itself in that the bed is very rocky and bouldery in its natural state and there are many small natural potholes upstream as well as downstream of the diversion facility.

On the day I observed the diversion facility in operation, Friday, August 28, 1964, I noted a reasonably good dry weather flow in the brook upstream of the diversion facility but all of the water of the brook was taken into the diversion box and carried thru the plastic pipeline to the pool.

I pointed out to Mr. Maynard that insofar as I could see, the County has no jurisdiction in the case at hand and that it is one of civil action wherein a downstream property owner who has the flow of a brook removed by action of an upstream property owner can take legal action to have the upstream owner required to pass on water for his downstream use.

Mr. Maynard also discussed a problem with me regarding the filling in of Chicopee Brook upstream of the Moulton Dam and adjacent to his property northerly of Chestnut Street. Land owner or owners on the left bank of Chicopee Brook have been dumping fill into the valley of the brook and forcing the brook in an easterly direction from what Mr. Maynard claims was the original thread of the stream and a sideline of his property.

I informed Mr. Maynard that again the matter of stream movement one way or another does not come under County jurisdiction unless the work involves the ponding of water and the creation of a condition dangerous to persons and property downstream. I suggested that he take the matter up either with the Division of Waterways of the Commonwealth of Massachusetts, the Corps of Engineers, or his Attorney with the thought in mind of bringing civil action to prevent any loss of his property by shifting of the brook easterly thru filling along the westerly

side of the stream if the Federal or State Agency can offer no aid.

Mr. Maynard wanted to know what action the County could take in his behalf in connection with the stream flow capacity of a culvert and a bridge opening in the Valley of Chicopee Brook under Chestnut Street adjacent to his home. Chicopee Brook flows northerly under Chestnut Street and the main thread of the stream passes under the street just westerly of his home thru a bridged opening. There is a second passageway for water under and across Chestnut Street to the west that is formed by a corrugated metal culvert arch. This arch has been blocked up with material deposited apparently by flood flows at and downstream of the culvert. The blockage is relatively high and only a small cross section near the upper portion of the arch is available for free flow of the stream. Also, in the bed of the stream at the bridge, some material has been deposited and the cross section for stream flow has been reduced slightly.

The undersigned pointed out to Mr. Maynard that culvert capacities and cross sectional areas under bridges for stream flow are matters that are handled by the Waterways Division of the Massachusetts Department of Public Works or the Controlling department of the Town involved. In the case of Monson, I pointed out to Mr. Maynard that the matter should probably be taken up with the Board of Selectmen and a request made that the culvert and bridge opening be cleaned if he is concerned over the possibility of water backing up on his property in time of flood flow.

In regard to the condition of the culvert and the bridge under Chestnut Street, Mr. Maynard also pointed out that the small feeder brook first herein discussed that parallels Chestnut Street after crossing onto Bethany Road and that discharges to Chicopee Brook at his property, is conveyed under Bethany Road in a 5 ft. diameter culvert but is then conveyed under an access ramp to a nursery area on his property in a Town installed culvert that is approximately 4 ft. in diameter. Additional surface water enters the brook from the intersection of Bethany Road and Chestnut Street downstream of the 5 ft. culvert. Mr. Maynard feels that a larger culvert should be installed at his access roadway to his nursery area.

Again in this case, I pointed out to Mr. Maynard that this is a culvert matter, not one having to do with dams, and consequently, it should be taken up with Town Officials.

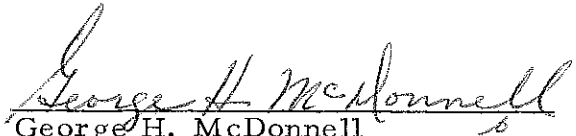
Mr. Maynard requested that a communication be sent to him containing the

**TIGHE  
& BOND CONSULTING ENGINEERS**

various recommendations and the advice given by the undersigned at the time of our conference.

If you concur in the contents of the enclosed suggested communication, it could be signed by your Board and forwarded.

Very truly yours,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mg

September 9, 1964

Mr. Alfred D. Maynard  
Chestnut Street  
Monson, Massachusetts

Dear Sir:

We have received a written report from the County Hydraulic Engineer relative to the various matters discussed with him on Friday afternoon, August 28, 1964.

At this conference, the County Hydraulic Engineer reviewed certain matters relating to the drying up of a small feeder brook that passes thru your property and discharges into Chicopee Brook. He also discussed with you a problem relating to filling being carried on along the westerly side of Chicopee Brook and the creation of a condition wherein the Brook course may have been changed as the result of this filling, to cause the flow of the water to be shifted onto property owned by you.

The matter of an arch culvert and bridge on Chestnut Street and culverts carrying the feeder brook to Chicopee Brook were also discussed.

In brief, it is the opinion of our Board that the County Hydraulic Engineer advised you correctly when he pointed out that the diversion of water from the small feeder brook by an upstream land owner is a matter of civil action and one in which the County has no jurisdiction. As reported by the County Hydraulic Engineer, an upstream land owner has caused diversion of the feeder brook water from the brook bed to an excavation that apparently has been dug in pervious material. Diversion is taking place without the presence of a dam and the diversion of the water into the excavation resulted in all of the dry weather flow of the brook being removed from the brook valley proper on August 28th, the day of inspection, and discharged, thru seepage action, into the ground at the excavation. Your observations show that this condition has been experienced for some time.

This construction and diversion has resulted in no water flowing in the feeder brook as it passes thru your property. In this matter, since there is no dam involved, and since the lives and safety of persons and property downstream are not endangered as a result of this diversion, there is no action the County can

take under the laws of the Commonwealth of Massachusetts. However, if you wish to have the flow of the stream returned so as to make use of the water in connection with the nursery and related work on your property, it is suggested that you discuss this matter with your Attorney.

In regard to your problem of Chicopee Brook being a westerly property line of your land and the fact that it is being filled on its westerly shore with the possibility of the brook being pushed over onto your property, again, this is a matter for civil action or possibly a matter for the Division of Waterways of the Commonwealth of Massachusetts or the Corps of Engineers. In any event, the County Commissioners have no jurisdiction and cannot act in this case.

In regard to the culvert and the bridge for conveying Chicopee Brook water under and across Chestnut Street at a point westerly of your home, the County Hydraulic Engineer pointed out that the corrugated iron arch culvert has its capacity reduced considerably by materials deposited in and downstream of the culvert. Also, at the bridge, the opening for passage of water is reduced by deposits of sand and gravel in the bed of the stream.

The matter of culvert maintenance comes under control of the Town of Monson and it is suggested that you discuss this matter with either the Superintendent of the Highway Department or the Board of Selectmen. You could point out to them that restriction of flow because of deposits in and beyond the culvert or the bridge could reduce the ability of these facilities to pass flood flows and consequently water in the brook could rise to flood your property and damage your nursery area.

Regarding the culvert under Bethany Road and under the access ramp or roadway to your property on the southerly side of Chestnut Street near your house, and particularly regarding the fact that the upstream culvert at Bethany Road is a 5 ft. culvert while the one downstream is only a 4 ft. culvert, again this is a matter over which the County has no jurisdiction and it should be discussed with the Town Officials as mentioned hereinbefore in the case of Chicopee Brook culvert and bridge. Generally speaking, culverts are sized larger and larger as one proceeds downstream. However, it is possible that for some particular reason, probably because of the fact that the lower culvert does not carry public traffic, the smaller culvert has been used at the ramp or access roadway to your nursery area. Loss of this culvert because of flood flows that might exceed its capacity, would not necessarily have any effect on vehicular traffic passing Chestnut Street. However, it is possible that it could cause flooding on your property and this problem could be brought to the attention of the proper officials of the Town of Monson.

We are sorry that we cannot help you in any way with these four problems since the laws of the Commonwealth do not give our Board any jurisdiction in any of the four cases presented by you.

If you have any further question in connection with these matters, please feel free to write or call this Board or to request the advice of the County Hydraulic Engineer.

Very truly yours,

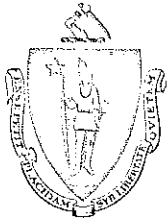
Board of County Commissioners

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Commonwealth of Massachusetts

# County of Hampden

Springfield, Mass.

COPY

Office of the  
County Commissioners  
52 State Street

William F. Stapleton  
Chairman

Ralph P. Walsh  
Floyd M. Fradet

October 16, 1968

Mr. W. C. Moulton  
Palmer Lower Road  
Monson, Massachusetts

Dear Sir:

In accordance with the provisions of Chapter 253, Section 45, et seq. of the General Laws, Tercentenary Edition, relative to the inspection, condition and safety of dams of Hampden County, you are hereby advised that your dam located on Chicopee Brook, upstream from the Church Manufacturing Company dam, has been recently inspected by our Engineer and your attention is called to the following conditions noted and recommendations made by him.

"This dam is in very poor condition. A report on the dam was submitted on April 8, 1968, and a letter was sent to the owner of the dam by your Board on April 10, 1968. At that time, the owner was advised that if he did not plan to constructively use the dam or water power related thereto, the structure should be breached in such a way that no water would be stored.

At the time of the most recent inspection of the dam on September 26, 1968, the structure was noted to be in the same poor condition as previously reported. However, the pond formed by the dam was empty. Water was leaking thru the water wheel structure at a rate equal to the inflow of Chicopee Brook.

The bottom of the pond is in general, only from 1 ft. to 2 ft. below the crest of the dam and thus, even when the pond is filled to normal capacity, the quantity of water stored is negligible. The undersigned is of the opinion that this dam will fail sometime in the not too distant future, but that when it does fail, there will be little to no danger as a

COPY

-2-

result of the released water. If failure should occur during flood flow conditions, the failure would never be observed until after water in the stream receded to normal elevation.

I am of the opinion that the owner should again be advised of the condition of the dam and that he should notify you of what action he plans to take, if any, in connection with repairing and properly maintaining the dam or in breaching the structure."

Will you kindly notify our Board of your plans for this old dam. If you do not plan constructive use of the dam or water power related thereto, you should give consideration to breaching the dam in such a way that should it suddenly fail, the quantity of water released will be at a minimum.

Any further information concerning this matter which you may desire will be furnished by this office upon request.

Very truly yours,

BOARD OF COUNTY COMMISSIONERS

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Montgomery Dam Inspections - 1959 - 1970



1959 Reports

Inspections by Tighe & Bond.

City/Town	Montgomery
Dam	Timbal Dam
Dam	Westfield Reservoir Dam
Name	Westfield City Water

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
**BOWERS AND PEQUOT STREETS**  
**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**

**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

**DAMS & POWER INSTALLATIONS**  
**HIGHWAYS & BRIDGES**  
**HOUSING DEVELOPMENT**  
**WASTE DISPOSAL**

C.D. Montgomery  
Jan. 11, 1957

The Hon. The Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections of dams in the town of Montgomery have completed the examination of all dams in that community during the year 1956. The following is a report on the condition of the dams in Montgomery. There are only two dams in the town of Montgomery. One of these dams is the water storage dam belonging to the Westfield Water Department and the other is a small masonry and earth dam known as the Timbal dam.

A. Westfield Reservoir Dam

This is a high earth embankment with a masonry channel spillway located on the headwaters of Moose Brook in the south central portion of the town of Montgomery. The dam is situated easterly of Tekoa Road. In the flood of August, 1955, the earth embankment of this dam was topped. A stone masonry wall located along the top of the embankment no doubt contributed greatly to the prevention of serious damage and possible loss of this structure. Water washing over the earth embankment caused certain washouts to be formed on the downstream face of the embankment. Excess overflow washed around the right end of the wall and washed a gully partly in the embankment and partly in natural earth.

During the past year repairs have been made to this dam under a flood repair project. When last inspected, the dam was found to be in good condition. It would be advisable to point out to the Water Department of the City of Westfield the need for increased spillway capacity at this dam.

B. D. Timbal Dam

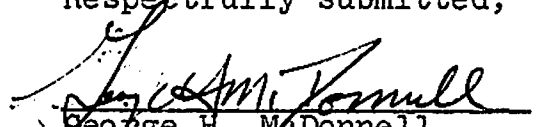
This is a small masonry and earth dam located on the headwaters of Crow Brook just easterly of Main Road in the northerly portion of Montgomery. This dam forms a small pond

Jan. 15, 1957

-2-

that is used for private recreational purposes. No damage of consequence occurred at this structure during the flood of August, 1955. When last inspected, the dam was in satisfactory condition. For a number of years this dam has been somewhat dilapidated. However, because of the small water shed involved and the insignificant quantity of water stored, the dilapidated condition of the dam is not serious.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/f

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
**BOWERS AND PEQUOT STREETS**  
**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**  
**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

CD Montgomery

August 22, 1958

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections of dams in the Town of Montgomery have been made during 1958. The last inspection was conducted on Thursday, August 21, 1958. There are only two dams in Montgomery, one being the storage reservoir dam belonging to the Westfield Water Department and the other being the small privately owned Timbal Dam.

A. Westfield Reservoir Dam

This dam is in fairly good condition. However, the spillway chute is in need of maintenance and repair for a distance of approximately 150 lin. ft. downstream of the spillway bridge. All cracks on the floor and sides of the spillway chute should be patched.


The stone masonry wall located along the top of the dam on the downstream side needs repairs at certain locations. This wall, though built mainly for protection of traffic on the dam and for aesthetic purposes, served to protect the dam from serious washout in the 1955 flood. By properly maintaining this wall, the structure may again protect the dam from failure in an extreme flood.

The spillway capacity at this dam should be increased. This recommendation has been made previously. The Board of Public Works of the City of Westfield should make plans to provide for this increased spillway capacity during the coming year.

B. E. Timbal Dam

This is a small masonry and earth dam situated on the head waters of Crow Brook. This structure is quite dilapidated but very little water is stored by this dam. The masonry needs attention and the earth fill requires regrading and maintenance. The dam is so small and the head of water so low that the dam presents no danger to persons and property downstream. Consequently, the structure is considered satisfactory from a safety viewpoint.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

CD Montgomery

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

October 7, 1959

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections of dams in the Town of Montgomery have been made during this past year. There are only two dams in Montgomery, one being the storage reservoir dam belonging to the City of Westfield and the other being a small privately owned dam forming a pond used for recreational purposes. The general condition of each of these two dams is as follows:

## A. Westfield Reservoir Dam

The spillway chute at this dam has been repaired as previously recommended. The various and numerous small cracks in the masonry of the chute have been plugged and patched. The stone wall located on top of the earth embankment of the dam at the downstream edge of the fill is in the process of being repaired. This wall should be completely and thoroughly repaired at an early date. It was noted that the wall is leaning downstream at some locations. This is apparently due to failure of the foundation and movement of soil under the wall. Also, in the flood of August, 1955, the wall apparently held back surplus water and consequently, was subjected to certain hydraulic pressure. This pressure together with a weakening and washing of the foundation undoubtedly contributed to conditions as they now exist. The wall has definite value as a safety factor in that it can prevent a washing out of the earth embankment during a prolonged rain if the embankment is again topped.

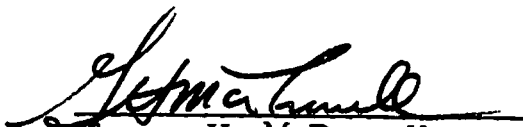
To prevent any future possibility of topping the earth embankment, added spillway capacity should be provided. The present dam and reservoir represent a major investment and loss of this dam not only would be a great financial loss to the City but considerable damage could be done to property downstream and lives could also be endangered.

An emergency spillway could probably be constructed very economically at the right end of the dam on existing natural ground. This is the general area where the washout occurred when the embankment was topped in 1955. The City of Westfield should give serious consideration to designing a proper additional spillway and constructing the spillway as soon as possible.

B. E. Timbal Dam

This is a small structure forming a pond of shallow depth. The dam is built of masonry and earth. It is quite dilapidated but does not present any problem insofar as persons and property downstream are concerned. Consequently, the structure is considered satisfactory from a safety viewpoint.

Respectfully submitted,



George H. McDonnell  
County Hydraulic Engineer

GHM/mb



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
Oct. 10, 1960

The Hon. the Board of County Commissioners  
Hampden County Court House  
Elm Street  
Springfield, Mass.

Gentlemen:

Inspection of dams situated in the Town of Montgomery made recently, has completed the inspection routine in that community. There are only two dams in Montgomery, one being the storage reservoir dam belonging to the City of Westfield and the other is a small privately owned dam forming a shallow pond used for recreational purposes. The general condition of these two dams is as follows:

A. Westfield Reservoir Dam

The embankment of this dam is in good condition. The downstream toe seems a little more spongy and wet than noted in previous years. However, no movement of water was noted and the condition is undoubtedly due to all of the wet weather experienced during the late summer period. The last inspection was conducted on Sept. 21, 1960 at a time following very heavy rain storms including the hurricane rain of Monday, Sept. 12. The spillway chute is in satisfactory condition. However, the vertical masonry side walls at that portion of the chute where the grade becomes steep, have voids that should be repaired in the coming year before weathering action and continuous high rates of overflow cause an enlargement of these voids.

The stone wall situated along the top of the downstream edge of the earth embankment has been repaired in certain sections but repairs are still needed to fill voids in the wall and to straighten the wall where it is leaning downstream. This wall should be maintained in good condition since its presence in time of high flood flow can divert flood waters to both ends of the dam and reduce the possibility of a major washout.

The dam should be provided with added spillway capacity.

CD Montgomery  
Oct. 10, 1960


This has been recommended in the past and serious consideration should be given by the Owner to including the cost of such construction in the Water Department budget. An emergency spillway could be constructed quite economically at the right end of the dam embankment on existing natural solid ground. This is the same area where a washout occurred during the flood of 1955. The washout at that time proved the solid condition of the natural soil to the right of the dam embankment.

B. E. Timbal Dam

The pond at this dam is higher than noted in previous years. The spillway has been plugged with brush, cut branches and mud. The mud and branches also line the entire length of the masonry wall portion of the shallow embankment of the dam. The presence of the brush, branches and mud could be the result of the work of beavers. However, many of the branches and sticks noted packed with the mud did not have typical beaver teeth marks. They could be broken branches brought to the site by the animals in their work. Though the spillway section is plugged and the entire length of the dam now passes overflowing water, the heavy flow of the hurricane rains on Sept. 12, 1960 did no damage to the structure. It would seem satisfactory to leave the dam as it exists with its built up height as the result of this apparent beaver action. The amount of water stored is small, the depth is shallow and there is little possibility that the water would ever be released in a rush, as the result of a failure. Conditions as existing are satisfactory.

GHM/cmb

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
July 21, 1961  
*Ed. B. T. Jr.*

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspection of dams situated in the Town of Montgomery has been completed for the year 1961. There are only two dams in Montgomery, one being the storage reservoir dam owned by the City of Westfield, while the other is a small privately owned dam forming a shallow pond at one time used for aesthetic and recreational purposes. The general condition of these two dams is reported as follows:

A. Westfield Reservoir Dam

The spillway chute is in need of maintenance and repair in the steep portion. The masonry is in need of pointing, both on the walls and the floor. The work is not of an emergency nature but, by making repairs at an early date, more costly work at a later date can be avoided.

The stone masonry wall existing at the top of the earth embankment, on the downstream edge, should be completely repaired and placed in good condition. This wall was instrumental in saving the dam during the flood flow of August 1955. Thus, the wall does have a definite value relating to the safety of the structure, as well as a value in protecting persons and vehicles from going off of the embankment roadway.

In the report for 1960, it was pointed out that the downstream toe of the embankment seemed a little more spongy and more wet than noted in previous years. It was also suggested that this condition might be due to the continuous wet weather experienced

during the Summer of 1960. At the time of the recent inspection on July 13, 1961, the toe of the embankment was found to be relatively dry and in good condition. Few soft, spongy areas were noted and little seepage water was evident.

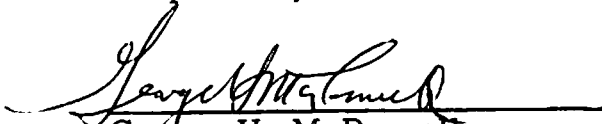
The dam should be provided with increased spillway capacity. This recommendation has been made previously and serious consideration should be given by the Owner and include the cost of such construction in a future Water Department budget. Undoubtedly an emergency spillway could be constructed quite economically at this dam and such construction could be instrumental in saving the structure, should another serious hurricane flood occur.

B. E. Timbal Dam

This dam was found to be in the same general condition as noted a year ago. A beaver dam has been built on the top of the low masonry and earth structure. This beaver dam causes the water level in the pond to raise about 8-inches to 12-inches above the normal water level grade. As the result of the beaver construction, the pond area has been increased and stored water in turn increased by about one-third million gallons.

As now existing, the structure does not endanger persons and property downstream. The pond, even considering the increased depth due to the beaver construction, is shallow and the total quantity of water stored is not great. The entire length of the dam as now existing acts as a spillway and it is doubtful if failure of the beaver dam would occur except in a limited area. The drainage area above the dam is negligible in size and there is no property immediately downstream of the dam that would be damaged by a partial release of the ponded water. Thus, in the opinion of the undersigned, conditions as existing at this dam are satisfactory.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
Oct. 17, 1963

The Hon. the Board of County Commissioners  
Hampden County Courthouse  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

Inspection of dams situated within the Town of Montgomery has been completed for the year 1963. There are only two dams in the Town that come under County jurisdiction, one being the storage reservoir dam owned by the City of Westfield and the other is a small privately owned dam forming a shallow pond at one time used for aesthetic and recreational purposes.

A. Westfield Reservoir Dam

A small amount of vegetation was noted growing in the spillway chute throughout various sections of the length of the structure. This vegetation should be killed and the chute repaired where cracks are noted. Repair work could be done with cement grout. The embankment of the dam was found to be in reasonably good condition. Two cavities or depressions were noted on the downstream face and these should be filled with packed earth and the surfaces then seeded and fertilized.

At the time of inspection on October 10, it was noted that water level in storage was the lowest seen in many years. It was estimated that water level was at least 12 ft. and probably nearer 15 ft. below spillway crest. As a result of low water level in storage, the upstream stone paved surface of the embankment was exposed to view and examination. The stone paving was found to be satisfactory.

The toe area of the embankment was dry and most of the downstream face had been cleared of weeds and brush.

The stone wall, located on top of the dam at the downstream edge is



still in need of repairs. This wall should be made stable and repairs completed so that the wall will be made fairly watertight. At the time of the hurricane flood in 1955, this stone wall protected the dam from failure by preventing overflow of water along the entire length of the dam. Without the existence of the wall, deep gulleys might have been eroded in the embankment with the eventual loss of the entire structure. The major part of the heavy storm runoff that overflowed the dam was diverted to both ends of the wall and thus erosion occurred on natural ground at the right of the dam, rather than in the embankment itself. By keeping this wall in a good stable condition and reasonably watertight, any future recurrence of the August 1955 storm will again cause surface water to be diverted from the high part of the embankment to both ends of the structure.

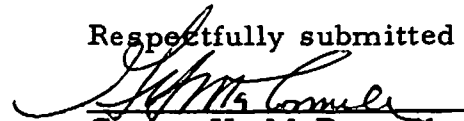
Since the flood of 8-years ago, it has been recommended that serious consideration be given by the Owner to include the cost of constructing an emergency spillway in the Water Department budget. An emergency spillway could be constructed economically to the right of the dam embankment on natural ground. There are other methods that could be employed to increase spillway capacity. However, the emergency spillway would probably be the least expensive.

B. E. Timbal Dam

The beaver construction at this small dam still exists. The beaver dam is built on top of the old earth and dry stone masonry dam and it extends across the spillway notch. At the time of inspection on October 10, water level in storage was down about a foot, more or less, below the top of the beaver dam construction. Little or no toe seepage was noted at the dam. The sticks, branch and mud-packed beaver dam built on top of the original structure is quite solid and the mud-pack on the upstream face is now covered with a fairly good growth of grass. At time of storm runoff, the entire length of beaver dam acts as an overflow.

Since the drainage area above the dam is negligible in size, since the quantity of water stored is not great and since there is no developed property immediately downstream of the dam, the presence of the existing beaver dam on top of the man made dam is not a danger to persons and property downstream. If the beaver dam should wash out, no doubt any failure will be localized and the water that is released will go out slowly and at a fairly well controlled rate.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
October 1, 1964

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The inspection of dams situated within the Town of Montgomery has been completed for the year 1964. There are only two dams in the Town that come under County jurisdiction, one being the storage reservoir dam owned by the City of Westfield Water Works and the other is a small privately owned dam forming a shallow pond that at one time was used for recreational and aesthetic purposes.

A. Westfield Reservoir Dam

The embankment of the dam was found to be in reasonably good condition. However, cavities and depressions noted in the report of a year ago still exist and the owner of the dam has not followed the recommendation to fill the cavities with packed earth and then to cover the repaired areas with loam that should then be seeded and fertilized.

The stone wall that for years has existed along the downstream edge of the top of the dam has been changed by the removal of a fairly long section at the central portion of the dam. In my report to your Board a year ago, as in other reports of previous years, it was recommended that the wall should be maintained and made stable since the presence of this wall contributed greatly to the saving of the dam in the flood of August, 1955. At a meeting with officials of the City of Westfield a number of months ago, the advantage of maintaining this wall or replacing it with a substitute was pointed out by the undersigned and it was my understanding that the City would take action to provide proper protection at this dam by the construction of other facilities that would be a substitute for the wall. It is strongly recommended that the owner of the dam be directed to either restore the wall or construct a substitute facility to protect the dam from flood flow conditions that were experienced in 1955.

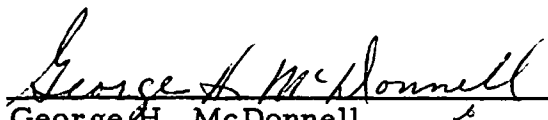
It is recommended again that serious consideration be given by the owner to include the cost of constructing an emergency spillway at this dam during the year 1965. An emergency spillway could be constructed economically to the right of the dam embankment on natural ground. There are other methods that could be employed for increasing spillway capacity. However, the emergency spillway would probably be the least expensive of the various possible methods.

On the day of inspection, water level in storage was quite low being 12 ft. to 15 ft. below the crest of the spillway. The spillway chute was clean and clear of debris and though some vegetation was growing from the floor and the sidewalls, the spillway facility was found to be in satisfactory condition.

B. E. Timball Dam

This dam was found to be in the same general condition as reported in 1963. The beaver dam built across the top of the original man-made dam is about 18" high and extends from embankment to embankment. The spillway notch of the dam is completely lost under the beaver dam and the beaver dam acts as a spillway for its entire length. The upstream face of the beaver dam is very well packed with mud and is covered with a fairly good growth of turf. The beaver dam can withstand flood flows. Though the entire structure would act as a spillway, in the opinion of the undersigned the dam is safe. No toe seepage of any amount was noted downstream of the dam. Water level in storage was about 2 feet below the top of the beaver dam.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
November 19, 1965

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has inspected all of the dams situated within the Town of Montgomery. These inspections were made on Monday, November 15, 1965.

## A. Westfield Reservoir Dam

The embankment of this dam was found to be in good condition insofar as shape and surface cover are concerned. The entire downstream face of the embankment had been cleared of brush and weed growth. The turf on the embankment was noted to be satisfactory. The toe area was good though a small amount of seepage was noted. This seepage is normal.

The upstream face consisting of rock fill was okay. Water level in storage was down about 10 ft. below spillway crest. As a result, a large portion of the rock filled upstream surface of the embankment was examined.

The stone masonry wall that runs the entire length of the dam along the downstream edge and adjacent to the roadway crossing the dam still has not been repaired or rebuilt. Ever since the flood of August, 1955, the undersigned has recommended that this wall be repaired. Conferences have been held with various City Officials on this matter and, as reported a year ago, the City agreed at the last conference to take some action to provide proper protection at the dam by the construction of facilities to substitute for the benefits provided by the wall.



In the flood of August, 1955, this wall saved the dam from a serious washout. Should another hurricane rain of this type occur and should the wall be in its present condition, it is almost certain that the dam will be washed out. Loss of this dam during a hurricane flood would greatly magnify downstream damage and would result in a tremendous financial loss to the City of Westfield.

The cost of replacing the damaged and missing portions of the wall would not be great. The City Officials responsible for the maintenance of this dam should delay no longer in replacing this wall as necessary, since it serves as a very inexpensive insurance policy, so to speak, that could again and actually did save the dam in the past.

If the City does not repair and reconstruct the wall, then an auxiliary spillway should be built as previously recommended from time to time.

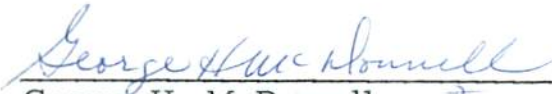
The spillway chute was found to be satisfactory. It needs some maintenance to prevent further weed growth thru the grouted stone floor. Normal flashboards were in the spillway.

B. E. Timball Dam

This dam was found to be in the same general condition as reported in recent years. Water level in storage was at the top of the beaver dam. This beaver dam has been built on top of the man-made dam and as a result the original spillway notch is completely lost to view by the beaver construction. The beaver dam is a strong dam, it has been well built, it has been covered with a thick layer of mud on which a tough turf has been developed.

In the opinion of the undersigned, the beaver dam can withstand flood flows.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mbf

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
July 7, 1967

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has inspected all of the dams situated within the Town of Montgomery. These inspections were conducted on June 16, 1967. Conditions noted at each dam located in Montgomery are as follows:

A. Westfield Reservoir Dam

The embankment forming this dam was found to be in fair to good condition. There was some seepage at the toe of the embankment just to the right of the gatehouse. This seepage is no worse than has been noted in past years.

The stone wall extending along the top of the dam at the downstream edge of the roadway over the dam is in very poor condition. Sections of the wall are leaning, areas are in need of repair and some 40 to 50 ft. of the wall is missing at about the central section of the dam embankment.

The spillway structure was found to be satisfactory. The stone masonry floor and wall were in good condition. The new concrete wingwall at the right side of the spillway channel entrance was okay. The normal stop log was in place in the slots at the channel crest. Water level in storage was about one inch down from the top of the stop log. The condition of the spillway chute along its entire length was satisfactory.

In spite of the fact that for ten years the City of Westfield has been advised of the necessity of keeping the stone wall in a good state of repair, and in spite of the fact that conferences have been held with various City Officials on this matter, nothing has been done by the City to provide added protection



# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

to the dam through the repair of the wall. This wall contributed greatly to the saving of this dam during the flood of August, 1955. The same conditions could happen again; and, with the wall in its present weakened condition and with the central section of the wall missing, it is almost certain the dam would fail due to erosion as a result of over topping of the embankment. The cost to the City of Westfield of replacing the damaged and missing portions of the wall would not be great. The City Officials responsible for the maintenance of the dam should delay no longer in replacing this wall or providing the necessary added spillway capacity as previously outlined in past inspection reports.

The relatively small investment needed to replace the wall or properly repair it is an insignificant cost as compared to the tremendous loss of both property and lives which would result if this dam is breached by a hurricane flood flow. It is difficult to understand why the Officials of a City such as Westfield, charged with the responsibility of protecting public property, have not made even a modest appropriation or a meager attempt to protect this tremendous investment.

At one time in the past when certain City Officials became mildly concerned about the dam, conferences were held with the undersigned and promises were made as to protective measures and improvements which would be taken and accomplished. Little to nothing was ever done and no forward steps of any consequence have ever been taken at this dam since shortly after the flood of August, 1955, to follow the recommendations submitted by your Honorable Board to the City.

It is recommended that a copy of this report be sent to the Mayor of Westfield; past reports have gone to the Water Department of the City and experience has shown no cooperation has been obtained relative to the proper maintenance and protection of this dam.

### B. E. Timball Dam

The beaver dam built on top of the original manmade dam seems to be abandoned. Whereas in the past the dam has always been kept in a good state of repair by the beaver colony, on the day of inspection water was passing through various small leaks through the dam. A major leak existed at about the site of the old manmade spillway. The packed mud and earth placed on and between the sticks forming the dam have developed a good, thick sod growth. Many of the underlying sticks forming the beaver dam are becoming rotten.

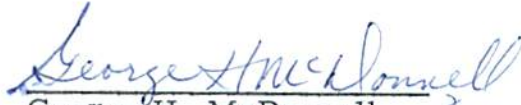
**TIGHE  
& BOND** CONSULTING ENGINEERS

This dam does not endanger persons and property downstream. In the past, the dam impounded much more water than at present. It is estimated that the capacity of the pond formed by the dam is no greater than 2/3 of a million gallons. The total height of the dam is just about six feet while the drainage area involved is only one quarter of a square mile.

Since the volume of the pond has been partially filled with material washed in from upstream, and since the amount of water that now can be stored is estimated to be less than one million gallons, in the opinion of the undersigned the structure no longer comes under County jurisdiction.

The structure will be inspected in the future, from time to time, since it is possible that some person might buy the site, dredge the pond and restore the dam together with its related pond to former conditions.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/lb



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
August 21, 1968

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has inspected the two dams situated within the Town of Montgomery. The inspections were conducted on the morning of August 21, 1968. Conditions noted at each dam are as follows:

A. Westfield Reservoir Dam

The City of Westfield has begun the work of raising the embankment of this dam to provide additional safety in time of flood flow conditions. The raising of the embankment is the result of many reports and various conferences wherein the City was advised to either repair the stone wall which saved the dam in the flood of August, 1955, or to take other steps which would give the added protection and increased spillway capacity. The contractor working on the improvements to the dam has removed the old stone wall and the stone masonry has been placed on the toe area of the embankment at each side of the toe gatehouse. In general, the stones have been separated in being removed from the wall so that the disposed of material allows for the movement of any collected water as it emerges from the embankment toe. The stones from the old wall add weight and stability to the toe of the embankment.

The undersigned made the inspection in the presence of City Engineer Donald Weinle. The fact that the toe area of the dam has been wet for a number of years, and this wet condition has been mentioned in various letter-reports, was called to the attention of the City Engineer and a

verbal recommendation was made that the City should have two observation wells installed in the embankment just above the toe for the purpose of determining the elevation of seepage water in the embankment. If it is found that the toe is quite wet and that the water surface in the embankment is close to the surface of the fill, the entire toe area could then be further improved by the placing of gravel and additional broken stone. This material will further weight the toe, will allow for the release of seepage water and will prevent any motion of soil particles from the embankment.

The work of raising the embankment will be started shortly. The contractor will strip the soil from the top of the embankment and will then place an impervious compacted core in the central section of the new construction. This core will be keyed to the existing embankment. The material to be used on each side of the core will be a pervious material with some gravel. Upon completion of the raising of the embankment to the grades as set and examined in the field, the surface of the new fill will be loam properly seeded and fertilized. The central section of the top of the new construction will be a gravel roadway along the length of the dam embankment.

The side slopes of the raised portion of the embankment will blend and be in line with the existing embankment slopes.

At the right end of the dam one curved section of the old stone masonry wall has been left in place. This section is in relatively good condition. The raised portion of the embankment will abut this wall and the curved right end of the wall will act as a deflecting and training wall for surplus storm water run-off which will pass around the embankment to the right during a flood of the magnitude experienced 13 years ago this month. To the right of the dam embankment on natural ground, the present access roadway grade will be lowered approximately 6" to 8". This surface will then be stabilized. This area will act as a low swale with its floor elevation well above normal flood flow grades but low enough to allow for the passage and overflow of surplus storm water around the right end of the embankment during extreme flood flows.

The undersigned expects to make further inspections of the work. Tentatively an inspection has been scheduled for the first week of September at which time much of the earth work will have been completed or will be underway.

It is the opinion of the undersigned that the dam is in satisfactory condition. Additional reports will be submitted following future inspections and particular attention will be given to the toe area of the dam.

B. E. Timball Dam


This dam was in the same general condition as reported previously. The beaver dam built on top of the original man-made dam is still in existence. The beaver colony apparently has left the area because a channel has been broken thru the beaver dam and water now discharges thru a notch in the old man-made dam. This notch appears to have been operating for some time and there is no evidence that the beavers have tried to close the opening.

The amount of water stored by this dam is quite small and the height of the dam is low.

It is doubtful that this dam would ever store enough water to be dangerous to persons and property downstream. A great portion of the original pond volume has been filled with material washed in from upstream.

No changes have been made at this dam since the time of the last inspection. The structure is considered to be safe.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

**TIGHE  
& BOND**

**CONSULTING ENGINEERS**

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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
July 24, 1970

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has completed inspections of the two dams located within the Town of Montgomery. These inspections were made on July 22, 1970. Conditions noted at each of the two dams are as follows:

A. Westfield Reservoir Dam

The embankment shape and the stone dust top surface were observed to be satisfactory. The raised section of the embankment now blends in very well with the basic original embankment. There is no brush growth on the downstream face but there is a fairly high weed growth that is becoming thick. It is particularly thick in the vicinity of the embankment toe. This weed growth should be kept cut down and a good turf growth should be developed upon the face and toe area of the embankment.

The upstream face rock filled surface was o.k.

Water level in storage was estimated to be approximately 4 ft. below the masonry crest of the spillway.

Flashboards on the crest were normal.

The spillway chute needs to be repaired and the attention of the owner of the dam should be called to the report of last year wherein the undersigned pointed out the need for repair work at the spillway masonry. Nothing has been done to repair the masonry during the past year.



Immediately adjacent to the crest of the spillway, just under and below the spillway bridge, the concrete and stone masonry floor is broken sufficiently whereby overflowing water passes under the floor of the spillway, and no doubt it is undermining the grouted stone masonry which forms the floor of the chute. Repair of this condition at an early date will certainly prevent the need for more extensive and more expensive repairs at a later date. It seems extremely unwise for the owner of the dam to allow the spillway chute to deteriorate when a minor amount of hand labor with some concrete grout can prevent further deterioration. All along the spillway chute there are areas where grouting will correct erosion and voids caused by displaced concrete and boulders.

The broken stone masonry fill at the toe area and located at both sides of the gatehouse was noted to be o.k. Some seepage water was observed at the toe of the dam below the stone fill but the condition was not as bad this year as observed in previous years.

It would be advisable in the near future to install a toe drain, particularly along the bottom of the embankment to the right of the gatehouse. This could be done by excavating a trench along the toe, probably 3-1/2 ft. in depth. The bottom of the trench could be filled with about 12" of gravel and then a perforated drainpipe could be installed. The trench should then be backfilled completely with gravel. The discharge end of the perforated pipe would be directed to the brook downstream of the gatehouse.

It is recommended that the officials of the Westfield Water Dept. again be advised of the need for repairs to the spillway chute and the Water Dept. should schedule these repairs for the present year. Particular attention should be given to that portion of the spillway chute directly below the crest where serious undercutting of the floor has been taking place and will continue until repair work is done.

B. E. Timball Dam


Conditions at this small dilapidated dam are in general, the same as reported a year ago except that beavers have again become active and the spillway notch that was functioning a year ago has been sealed with branches, twigs and packed mud.

The water level in storage has been raised nearly a foot above the level of a year ago as a result of the beaver action. There is very little freeboard at the dam since the beaver construction has been relatively level and fairly tight across the top of the old man-made dam.

In the opinion of the undersigned, the dam is not dangerous since it is low in height and relatively wide in section. The valley below the dam is not developed and the valley could absorb the loss of water which would occur if a breach should be made in the beaver dam constructed on top of the man-made dam. Even if the beaver dam happened to become breached, the man-made dam would undoubtedly hold and only the top foot or slightly more of the water in the pond would be released downstream.

In the opinion of the undersigned, though the dam is dilapidated and receives no maintenance or attention whatsoever, it is safe and does not endanger persons and property downstream.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

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CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
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SUPERVISION OF CONSTRUCTION AND OPERATION

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LABORATORY DIRECTOR  
GARY R. SWANSON

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Montgomery  
November 16, 1970

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Re: Westfield Reservoir Dam,  
Montgomery

At the time I submitted my report on the routine inspection of dams in the Town of Montgomery, I pointed out that certain repair and maintenance work was needed at the Westfield Reservoir Dam.

In the 5th and 6th paragraph of my report, I pointed out that the spillway chute was in need of repair and that immediately adjacent to the crest of the spillway, just under and below the spillway bridge, the concrete and stone masonry floor of the spillway had become broken to a point whereby overflowing water passed under the floor of the spillway and no doubt was undermining the floor of the masonry chute.

It was pointed out that repair of this condition would prevent the need for more extensive and more expensive repairs at a later date. It was also pointed out that all along the spillway chute areas were noted where grouting would be advisable to correct erosion and to fill voids caused by displacement of concrete and boulders.

In your letter of notice to the Board of Water Commissioners of the Westfield Water Department, the need for this repair work was emphasized and your Board stated that it would be logical to protect the public property involved by having the repair work completed along the floor of the spillway chute before fall rains raise the level of the reservoir to a point where overflow will take place.

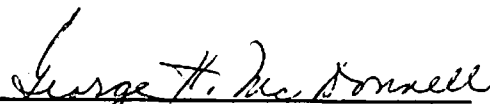
The Westfield Water Department informed me a week ago that the spillway chute had been repaired. Since the recommendations for the repair work were initiated by your Board prior to the transfer of the responsibility for dams to the Mass. Dept. of Public Works, I thought it advisable to comply with the request of the Water Department and inspect the work.

On the afternoon of the holiday, November 11th, I met the contractor at the site of the work, reviewed the grouting and observed that conditions have been improved greatly. The entire floor of the spillway chute has been grouted for its full length. The contractor stated that all voids were completely cleaned of debris, prepared for concrete and filled with concrete. The work was accomplished in accordance with specifications prepared by the City of Westfield.

Provided normal maintenance is practiced in the future, there should be little or no further trouble with the floor of the spillway at this dam.

A copy of this report is being forwarded to the Division of Waterways of the Mass. Dept. of Public Works for their information.

Very truly yours,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

Palmer - Petition of Board of Selectmen to Flood & Hurricane Relief Boards - February 2, 1956



1956 Reports

"Hurricane Diane" - August 19, 1955 - storm damage issues.

Bridges	Burleigh Bridge
Bridges	Bridge Street Bridge
City/Town	Palmer
Name	New England Power Company
Name	U S Army Corps of Engineers
Streets	Route 20
Streets	Wilbraham Street
Streets	Bridge Street
Water	Ware River
Water	Chicopee River
Water	Quaboag River



CORPS OF ENGINEERS, U. S. ARMY  
OFFICE OF THE DIVISION ENGINEER  
NEW ENGLAND DIVISION  
887 COMMONWEALTH AVE.  
BOSTON 15, MASS.

ADDRESS REPLY TO:  
DIVISION ENGINEER

REFER TO FILE NO.

NEDGW

2 February 1956

Mr. George B. Cheney, Chairman  
Board of Selectmen  
Palmer, Massachusetts

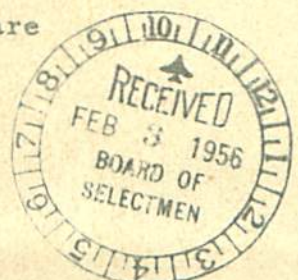
Dear Mr. Cheney:

A preliminary plan for clearing and flood protection on the Chicopee, Ware and Quaboag Rivers in Palmer is briefly outlined below. This is not a comprehensive plan but shows certain items or projects General Fleming has ordered to reduce hazards to life and property created by the "Diane" flood. The immediate problem is to remove bottlenecks either created by or which aggravated the "Diane" storm in such a way that this work will contribute to any plan of flood protection which may be ultimately authorized. We propose to use the material excavated insofar as possible to construct a short dike along the Quaboag River. The dike will not be completed at this time but will afford considerable protection to Route 20.

General Fleming is directing his Sub-area Engineer at Worcester to start widening the river or make certain cuts in the river as shown on the inclosed map. Real estate must be provided by local interests without charge to the Federal Government. The Town must furnish satisfactory assurances of all real estate rights, including land, easements and rights-of-way required at all localities wherein work is to be performed, including the places marked on the map. In addition, satisfactory assurances to save and hold the government, its officers and agents harmless from any and all claims in connection with this work should be furnished by the local government.

You will be contacted from time to time by our engineers for these assurances.

The areas where excavation is to be accomplished are indicated on the plan. They are as follows.





Mr. George B. Cheney

2 February 1956

a. Area A, on the right (north) bank of the Ware River near the Thorndike Street bridge, to widen the river by approximately 40 feet to the full width of the bridge opening, for a distance of about 350 feet upstream of the bridge.

b. Area B, on the left bank for a distance of 300 feet downstream of the Thorndike Street bridge to remove the gravel bar in this area.

c. Area C, on the right bank, beginning about 300 feet downstream of the Thorndike Street bridge and extending downstream about 350 feet, to remove a gravel bar in this area.

d. Area D, on the left bank of the Chicopee River, downstream of Bridge Street to remove the gravel and rubbish bar in the channel.

The spoil area is shown on the plan and described as follows:

Beginning at the Wilbraham Street (Route 20) bridge over the Quaboag River and extending easterly on the south side of Wilbraham Street, thence southerly, easterly and northerly around the Brenton Motor Sales to Wilbraham Street and along the south side of Wilbraham Street to the railroad embankment.

The Palmer Street bridge over the Quaboag River about one mile upstream of Three Rivers was inadequate and was destroyed. ~~It is understood that this bridge is not to be replaced.~~ In the event that it may be later decided to replace this bridge, the new bridge should have approximately 50 percent greater span and the bridge and approaches should be raised.

The dam located approximately one half mile downstream of the Bridge Street bridge is the prime hydraulic control in the vicinity of Three Rivers and flood stages in Three Rivers reflect the channel backwater from the dam. Construction of a gated spillway section, designed to pass 50,000 cubic feet per second with a water surface at elevation 300 during floods, would do much to reduce upstream flood damages. This would also eliminate the flow which passed around the land side of the power house at the dam and caused substantial damage to the generators.





Mr. George B. Cheney

2 February 1956

In the event that the dam is reconstructed, several other constrictions will then control flood levels at Three Rivers. In decreasing order of importance, they are as follows:

- a. The bridge at Bridge Street should be reconstructed with a different type of design and with a waterway opening of at least 5,000 square feet.
- b. The Main Street bridge should be widened by one span to increase the waterway opening to 4,000 square feet.
- c. The length of the railroad bridge should be increased by adding another span.
- d. The constriction between the F. and D. Machine Works and the White Aircraft Building should be widened by at least 8 or 10 feet.

The Senate Public Works Committee has authorized a complete reappraisal of the Corps of Engineers flood control plans for the Chicopee River Basin. Under this authority, work has been initiated toward the development of additional flood control measures where such measures are needed and justifiable. Construction of such measures can be undertaken only after careful study and planning, and after the necessary appropriation of funds, both by Congress and local authorities. The reappraisal will be processed as rapidly as is consistent with our total program.

The emergency work for the protection of life and property which we propose to do will improve conditions considerably in two areas. Its completion will require the cooperation of the Town of Palmer and agencies of the Commonwealth of Massachusetts. We have had engineers studying this problem since soon after the "Diane" flood, and the work which we have outlined is the result of as thorough an analysis as we have been able to make. There are undoubtedly many other things which could be done and many other ideas which could be considered, but we feel that we do not have the time to spend in protracted hearings or discussions, particularly since we have a similar emergency situation in several other communities besides Palmer.





Mr. George B. Cheney

2 February 1956

A copy of this letter is being sent to the Governor of Massachusetts for his information and action. We strongly recommend that you take action to secure the cooperation we need for the emergency work. We also strongly recommend that you initiate action as soon as possible on the recommended improvements which we are not able to do under our emergency authorization.

FOR THE DIVISION ENGINEER:

Very truly yours,



J. R. THOMPSON

Lt. Colonel, Corps of Engineers  
Executive Officer

Incl

Print of Channel Clearance  
at Palmer, Massachusetts

cc: Honorable Christian Herter  
Governor of the Commonwealth  
of Massachusetts  
Boston, Massachusetts





Commonwealth of Massachusetts

To: Board of Flood Relief  
and  
Hurricane Relief Board

*Received in Hampshire  
County Comm.  
Office on  
Feb. 17, 1956*

Respectfully represents George B. Cheney, John D. Aldrich and Peter F. Warakowski, that they are the duly elected Board of Selectmen of the Town of Palmer.

The flood of August 19, 1955 did irreparable damage to two sections of the Town of Palmer, namely the residential, commercial and industrial sections of the Village of Three Rivers and the section near the underpass on Route 20 in the vicinity of the industrial plant of Colorado Fuel & Iron Corporation. By far the greater damage was done in the first mentioned area, and we can definitely establish that an excess of One million (\$1,000,000) Dollar loss resulted in that immediate vicinity due to flood conditions. Certain other areas of the Town sustained damage, but to a lesser degree. The Burleigh Bridge connecting the Village of Three Rivers and the Village of Palmer was completely destroyed and the Department of Public Works of the Commonwealth of Massachusetts has plans to rebuild this bridge. The estimated cost would be approximately One hundred fifty thousand (\$150,000) Dollars and the approaches to the bridge will cost an additional Fifty thousand (\$50,000) Dollars.

The Board of Selectmen obtained from the Corps of Engineers, U. S. Army, a report on the flood causes and you will find hereto attached a copy of said report. It is to be noted that on the last Paragraph of Page 2 and continuing on Page 3 of the Army Engineers' report are five specific recommendations to correct the flood situation. The construction of a gated spillway as mentioned in the last Paragraph on Page 2 must necessarily be done on property of New England Power Company which owns and controls the dam. Subdivision B on Page 3 is a bridge which was constructed with Chapter 90 Funds less than 10 years ago. Subdivision C is a bridge owned by the Central Vermont Railroad. Subdivision A is the bridge which seemingly causes the greatest flood hazard and is an old stone culvert bridge which was considerably weakened during the recent flood. The area inundated by the August 19, 1955 flood was also considerably damaged by two previous floods and it is imperative that something be done to correct the situation that this great destruction should not be permitted to occur in the future.

Although the Burleigh Bridge which was completely destroyed is a convenient connecting link between the Village of Three Rivers and the Village of Palmer, it is felt that the expenditure of approximately Two hundred thousand (\$200,000) Dollars to replace this structure could be much better used on the Bridge Street bridge and also to remove the constriction as set forth in Paragraph D on the third page of the Army report. The Bridge Street bridge situation is immediately in need of correction and it is proposed that the Town of Palmer would forego the Burleigh Bridge replacement if the monies necessary for such replacement could be allocated to the Bridge Street bridge situation. It is felt that



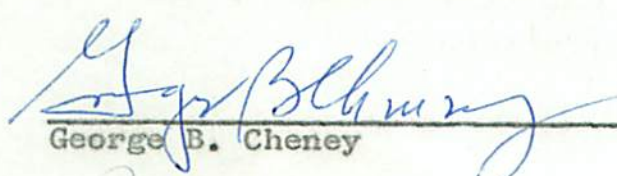
the Town of Palmer would be willing to co-operate in every way including financial insofar as our limitations permit and that some private monies might be obtained to assist in the project.

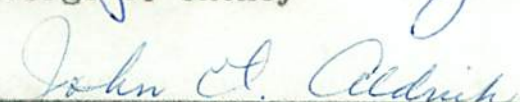
It is respectfully requested that a hearing be granted to your petitioners to set forth in detail the proposals as listed above. Inasmuch as the existing situation is critical, it would be appreciated if you would assign this matter for an early hearing and inform your petitioners of any other parties you wish to have joined or notified.

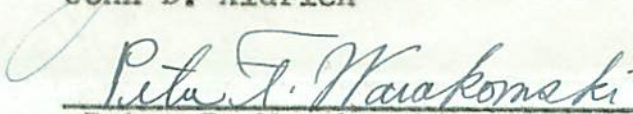
A copy of this petition is being filed with Hampden County Commissioners and the Department of Public Works, Commonwealth of Massachusetts.

TOWN OF PALMER

By BOARD OF SELECTMEN

  
George B. Cheney

  
John D. Aldrich

  
Peter F. Warakowski

Palmer - Report on Flood Protection Survey - 1956



1956 Reports

Report dated September 18, 1956 by Chas. T. Main, Inc. to the Board of Selectmen in Palmer on their study to prevent flood damage along the Chicopee & Quaboag Rivers in Palmer.  
Quabbin Reservoir.

Bridges Central Vermont Railroad Bridge

City/Town Palmer

Dam Three Rivers Dam

Streets Route 20

Streets River Street

Streets East Main Street

Streets Main Street

Streets Springfield Street

Streets Palmer Street

Streets Bridge Street

Water Quaboag River

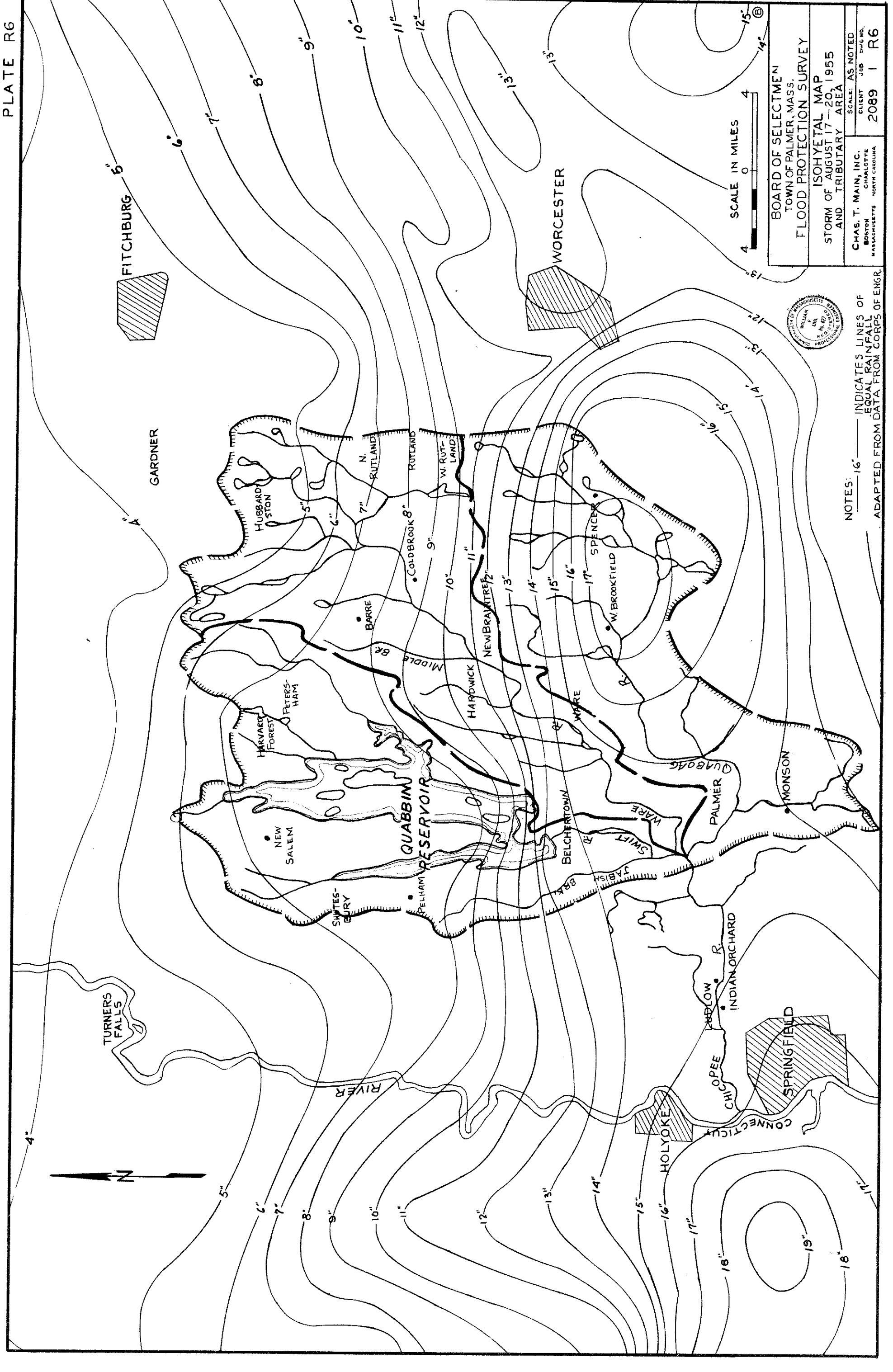
Water Chicopee River

Water Quabbin Reservoir

Water Ware River

Water Swift River

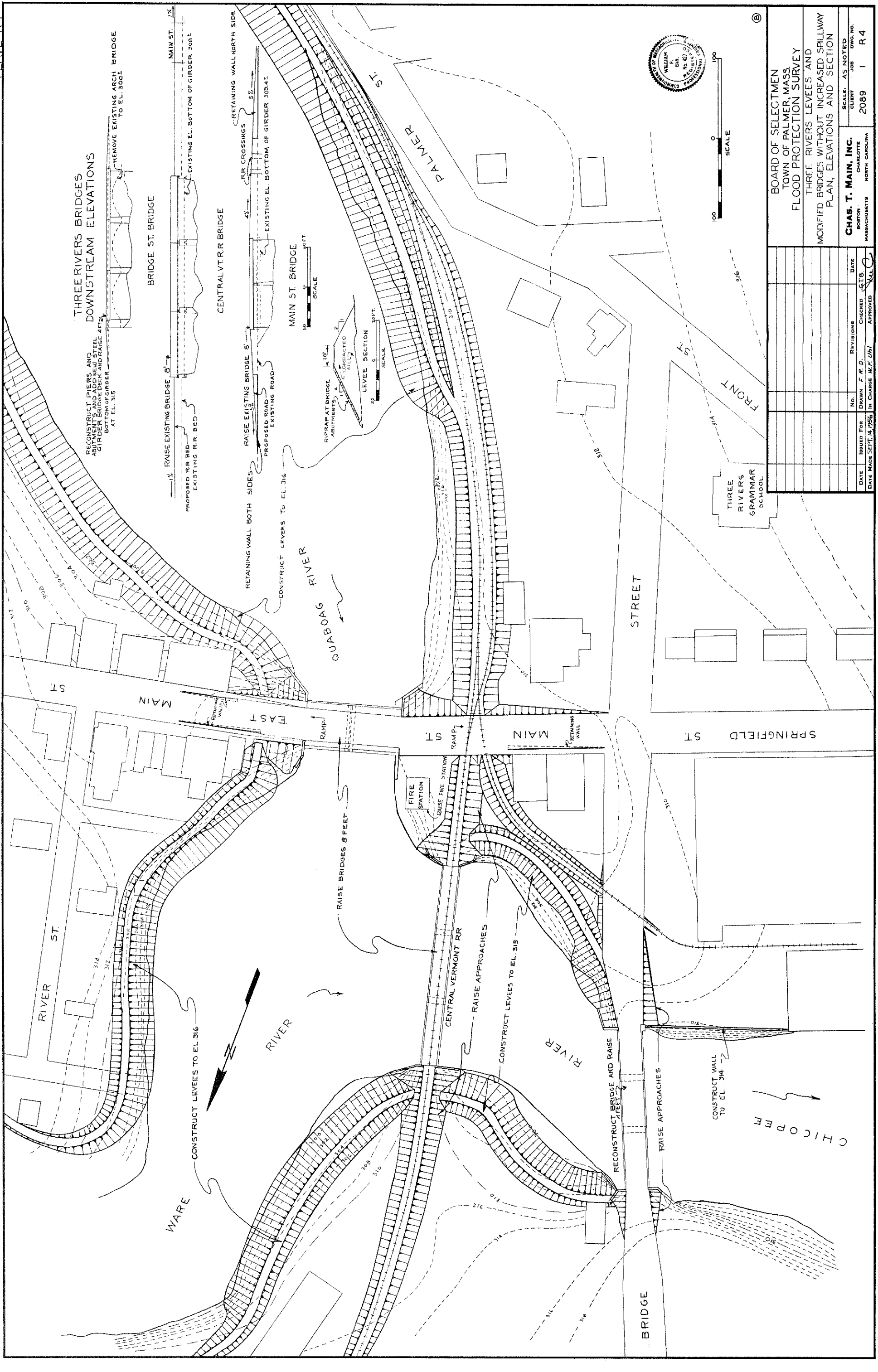


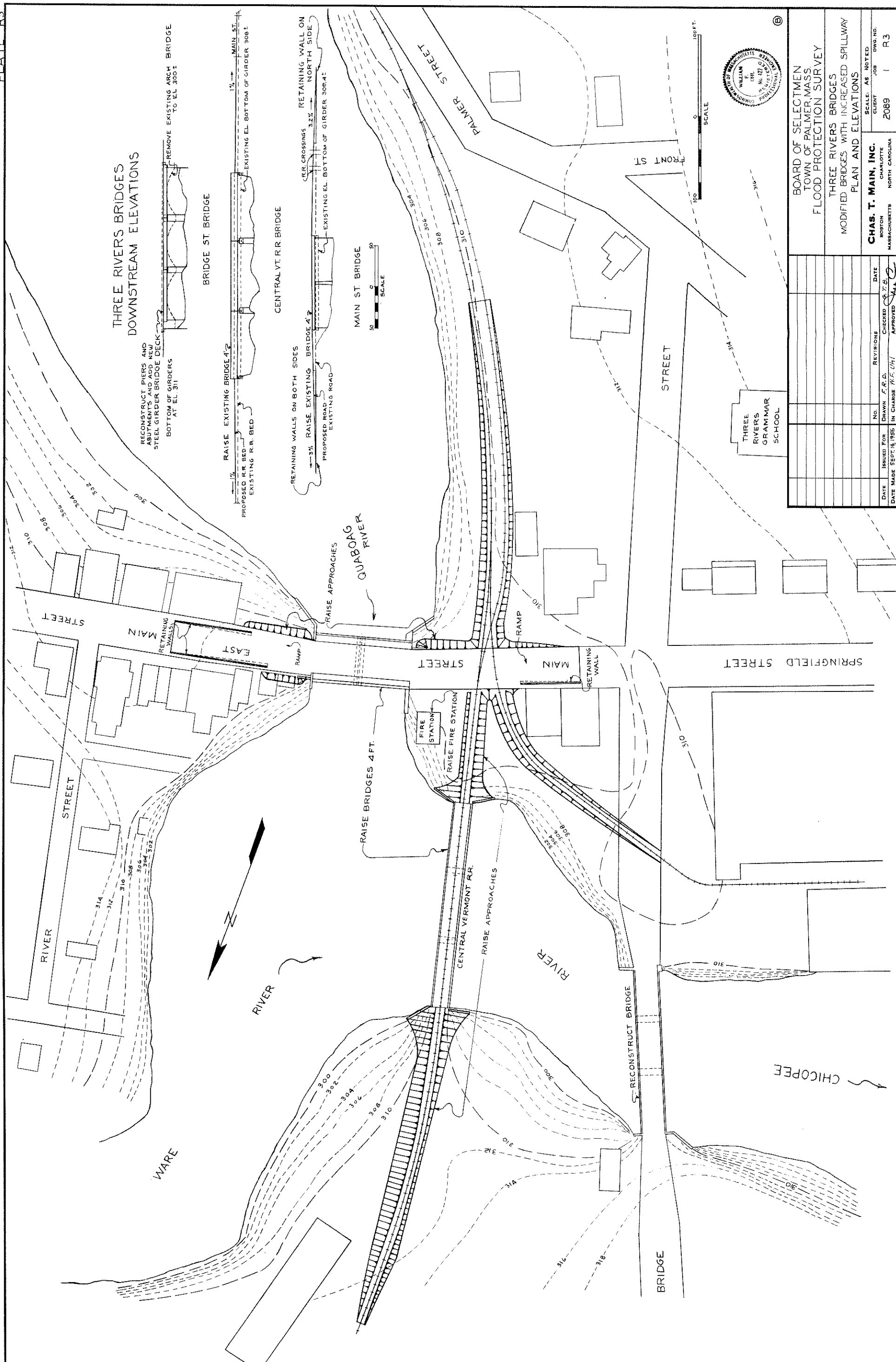


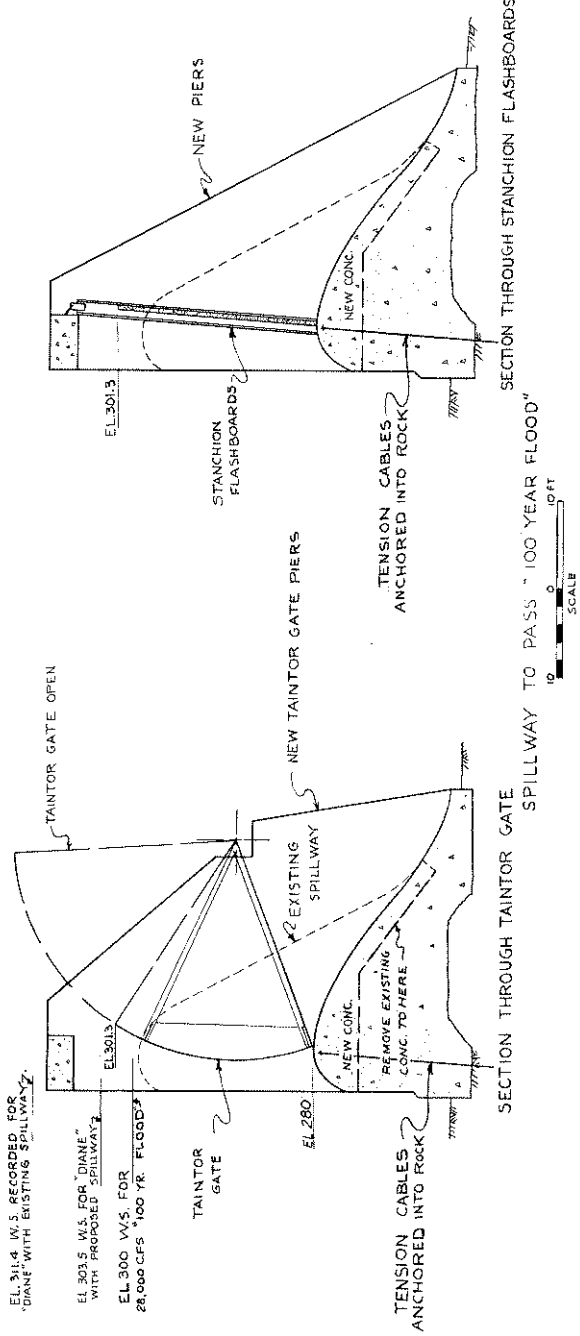
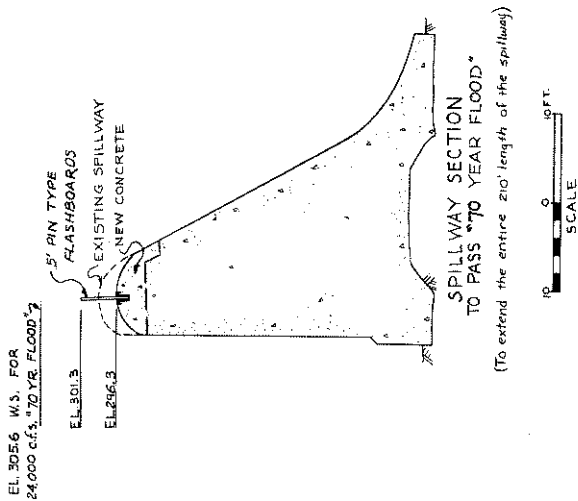
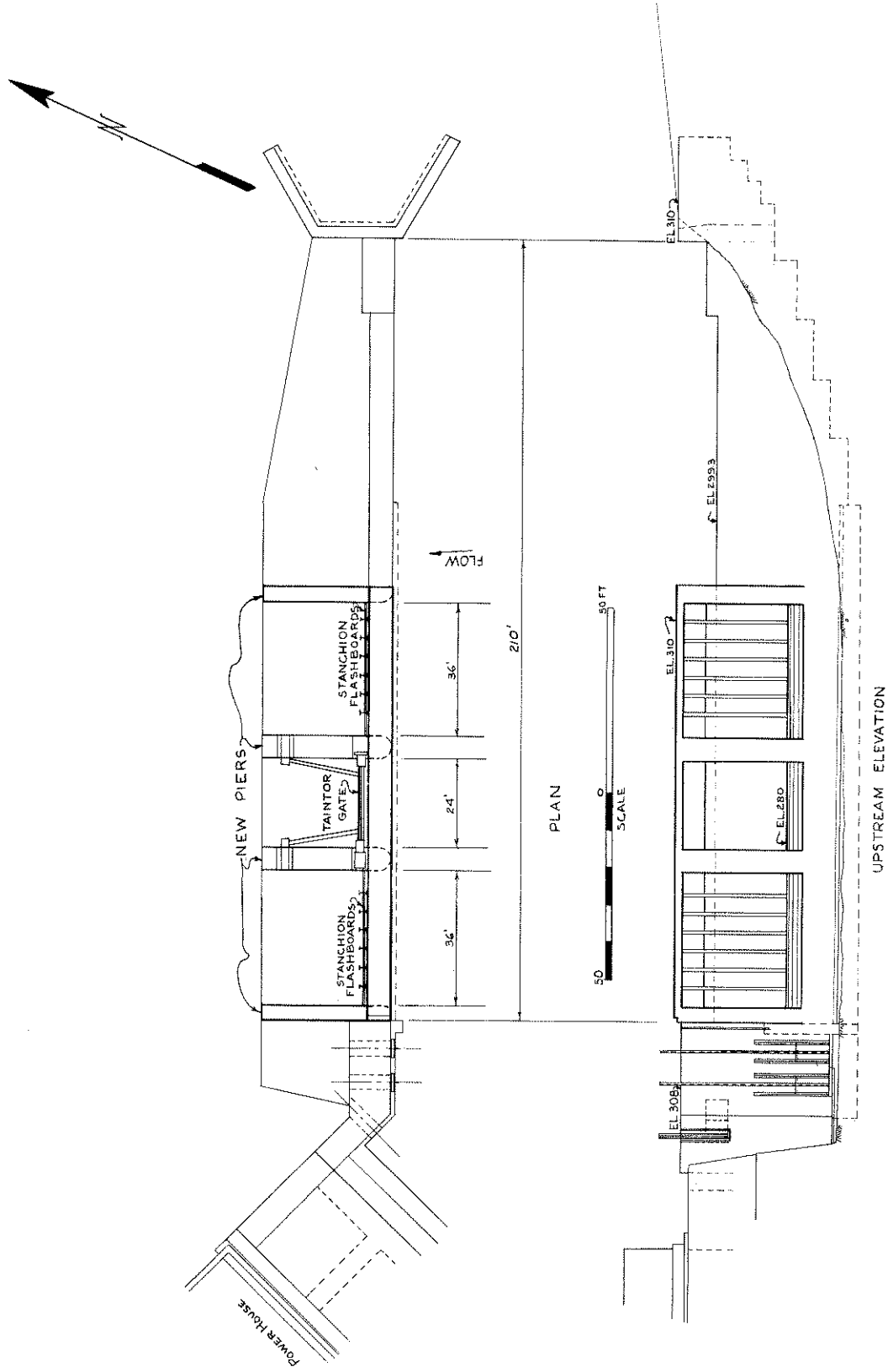
NOTES: 16" — INDICATES LINES OF  
EQUAL RAINFALL  
ADAPTED FROM DATA FROM CORPS OF ENGR.

BOARD OF SELECTMEN TOWN OF PALMER, MASS. FLOOD PROTECTION SURVEY	
ISOHYETAL MAP STORM OF AUGUST 17-20, 1955 AND TRIBUTARY AREA	
CHAS. T. MAIN, INC. BOSTON MASSACHUSETTS	CLIENT JOB NO. 2089
SCALE: AS NOTED	DWG NO. 1 R6



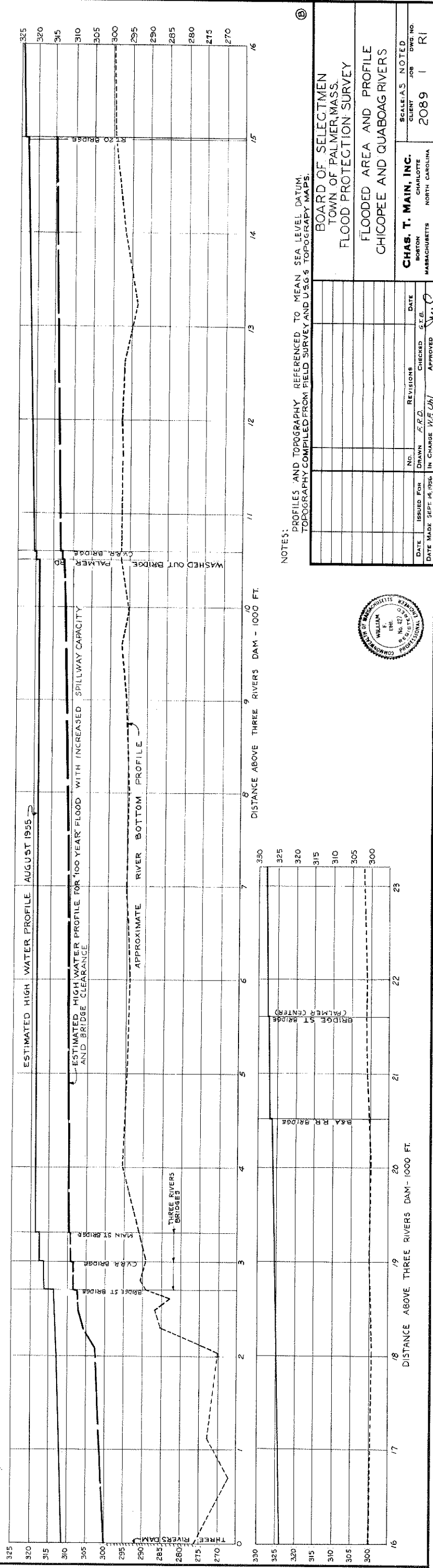
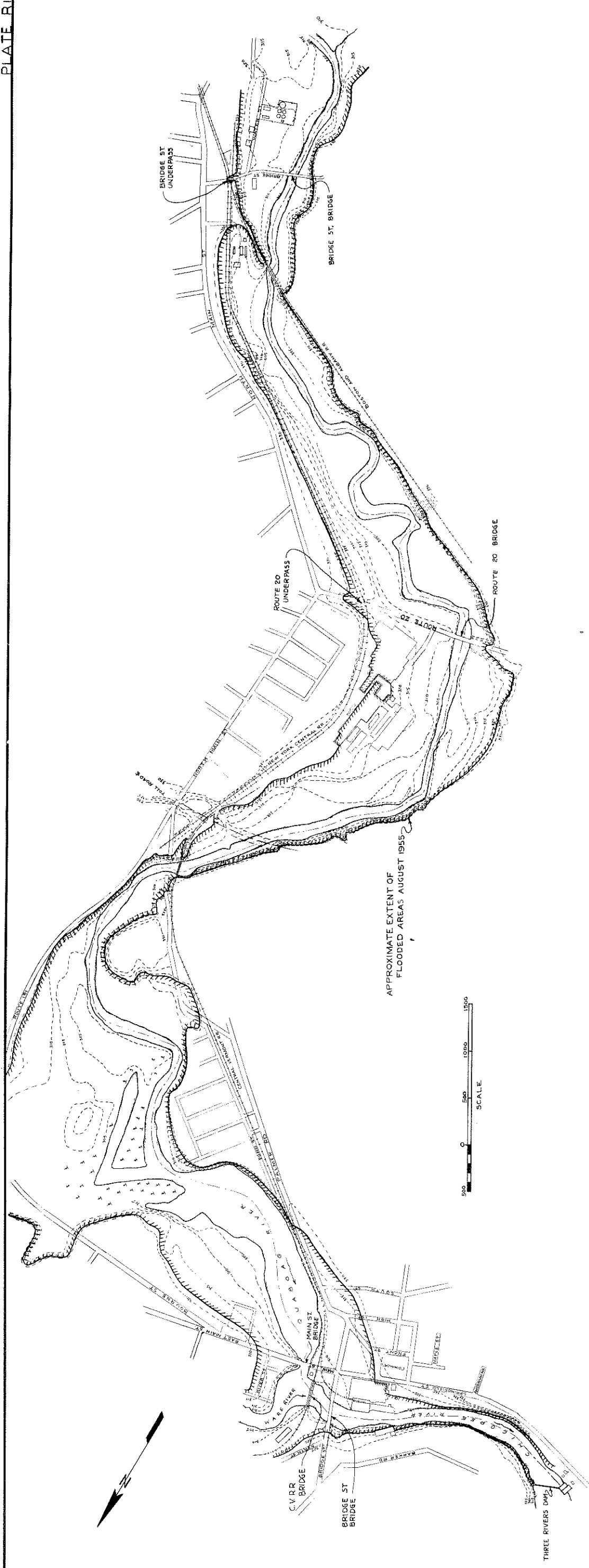


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BOARD OF SELECTMEN TOWN OF PALMER, MASS. FLOOD PROTECTION SURVEY				SCALE AS NOTED	CLIENT JOB	DWG. NO.
THREE RIVERS DAM INCREASED SPILLWAY CAPACITY PLAN, ELEVATION AND SECTIONS				CHAS. T. MAIN, INC.	BOSTON MASSACHUSETTS	2089 1 R2
DATE	ISSUED FOR	DRAWN	REVISIONS	CHECKED	DATE	
DATE MADE SEPT. 14, 1956		IN CHARGE W.T.H.				







F. M. GUNBY  
W. F. UHL  
W. M. HALL  
R. W. LOGAN  
M. JACOBS  
G. R. RICH  
R. T. COLBURN

CHAS. T. MAIN, INC.  
80 FEDERAL STREET  
BOSTON 10, MASS.

INDUSTRIAL PLANTS  
TEXTILE MILLS  
PAPER MILLS  
PRINTING PLANTS  
STEAM POWER  
WATER POWER  
FOUNDATIONS  
VALUATIONS

CABLE ADDRESS  
CHASMAIN, BOSTON

317 SOUTH TRYON STREET  
CHARLOTTE, N. C.

September 18, 1956

2089-1-1

SUBJECT: Chicopee and Quaboag Rivers  
Flood Protection Survey

Mr. George B. Cheney, Chairman  
Board of Selectmen  
Town of Palmer, Massachusetts

Dear Mr. Cheney:

In accordance with your request we have studied measures to prevent flood damage along the Chicopee and Quaboag Rivers in the Town of Palmer. The following is a summary of our findings and conclusions:

The August, 1955, flood caused damage in the Three Rivers area, the vicinity of Route 20, and in the vicinity of Bridge Street (Palmer Center). The September, 1938, flood was also very severe, although with Quabbin water supply reservoir since completed and Barre Falls flood control reservoir now under construction such a flood would be reduced by about 25 percent at Three Rivers.

While these two floods occurred within eighteen years of each other, flood records on these rivers and the history of severe storms in New England show that such extreme floods are rare occurrences. Although prediction of the likelihood of repetition of such floods can be estimated only approximately, our studies indicate that floods at Three Rivers of the magnitude of the 1955 flood should not be expected to occur on an average oftener than once in about 400 years, and the 1938 flood once in about 200 years.

Since the cost of protection against floods of such infrequent occurrence would probably not be economically justified, the studies in this report have considered protection against floods of lesser magnitude which might be expected to occur, on an average, once in 100 years or less.

The following measures provide for varying degrees of protection. The extent of protection to be provided will depend upon the damage benefits. As discussed with you, we have not prepared an analysis of these benefits.

For protection at Three Rivers against a flood which might be expected to occur about once in 70 years on an average, the measure presented in the report provides for lowering the spillway crest at the Three Rivers dam by three feet, reconstructing the arch bridge at Bridge Street, and raising the Railroad and Main Street bridges four feet.

For protection at Three Rivers against a flood with a probable average frequency of once in a 100 years, the measure presented in the report provides for the installation at the Three Rivers dam of a flood gate 24 feet wide by 21 feet high, and two emergency flood openings 36 feet wide normally closed with stanchion type flashboards, 21 feet high, reconstructing the arch bridge at Bridge Street, and raising the Railroad and Main Street bridges 4 feet.

For protection at the Route 20 area the measure presented in the report provides for reconstructing the Route 20 bridge and surrounding the area with a levee in order to permit future expansion of the existing industry in this area.

Protection of the Bridge Street area would require an extensive levee. With the exception of the lumber yard area between the two railroads at the end of Foundry Street protection by such a levee would not be justified. Flood damage for the 100 year flood can be alleviated at some of the buildings by minor structural changes, and by temporary measures upon warning of high water conditions.

The cost of such protection is estimated as follows:

Protection at Three Rivers and Route 20 against "70 year flood" .....	\$ 760,000
Protection at Three Rivers and Route 20 against "100 year flood" .....	1,030,000

These proposals are discussed in more detail in the report along with alternate plans considered.

Very truly yours,

CHAS. T. MAIN, INC.

By

  
Byron O. McCoy

BOM/n

TOWN OF PALMER  
BOARD OF SELECTMEN  
PALMER, MASSACHUSETTS

REPORT  
ON  
FLOOD PROTECTION  
SURVEY

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TRIBUTARY AREA

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TOWN OF PALMER  
BOARD OF SELECTMEN  
PALMER, MASSACHUSETTS

REPORT  
ON  
FLOOD PROTECTION  
SURVEY

#### I - PURPOSE AND SCOPE

This report presents the results of studies of measures to prevent flood damage from the Chicopee and Quaboag Rivers and their tributaries in the Town of Palmer, starting at the Three Rivers Dam and extending upstream through Palmer Center to the outlet of the brook in the vicinity of the Monson State Hospital.

## II - DESCRIPTION OF FLOOD PROBLEMS

### A. General

The Palmer flood problem has been accented by the occurrence of two very large floods in less than 20 years. Plate R1, a plan and profile map of the Chicopee and Quaboag Rivers, in the vicinity of Palmer, shows the general features of the August 1955 flood. While flooding was general throughout this reach of the river, only those locations which have been developed were so extensively damaged as to justify considering flood protection measures. On this basis the flood problem may be divided into three areas, the Three Rivers area, Route 20 area, and Bridge St. (Palmer) area.

### B. Three Rivers Area

The area at Three Rivers was apparently first developed to take advantage of a water power with a small dam located between the present Central Vermont Railroad bridge and Bridge St. bridge. In 1910 the Otis Company demolished this dam and built the existing Three Rivers Dam about one-half mile below Bridge St. In the meantime, as the area grew and the need for transportation developed, three bridges were built near the confluence of the rivers; one road bridge at Bridge St., and a railroad bridge about 250 feet upstream, across the Chicopee; and one road bridge at Main St. across the Quaboag. The existing bridges across the Chicopee were built in the early 1920's, replacing previous structures. The Main St. bridge, replacing an older structure, was constructed in 1948.

The bridges and the dam with the exception of the Main St. bridge were built before the occurrence of the large floods of 1936, 1938 and 1955. In the absence of a severe flood experience on this stream, the



dam and the bridges were not built with large flood capacity, so that the combined effect of backwater from the dam and channel constriction by the bridges during exceptional large flows causes flooding of a portion of the Three Rivers area. During the 1955 flood the water was about 6 feet above the deck of the Main St. bridge. Water covered about 40 acres of developed land and flooded about 75 buildings not including garages and barns.

The Three Rivers Dam is a concrete gravity structure about 250 ft. long, of which 210 ft. is spillway. The spillway consists principally of an ogee weir 190 ft. long with its crest about 27 ft. above the river bottom at elevation 299.3 ft. above mean sea level. Normally 2 ft. of flashboards are carried on this crest raising the normal water level to 301.3. The northeast end of the spillway consists of a flat crested weir 20 ft. long with crest elevation at 302.3. The powerhouse and intake structure are located on the south bank of the river. The deck of the intake and trash rack varies in elevation from 306.0 to 310.0 and was flooded during both the 1938 and 1955 floods.

The Bridge St. bridge has three 56 ft. spans of masonry arch construction. The springline of the arches is at approximately elevation 300 and the crown of the arches is at approximately 310. The total waterway opening is about 3000 sq. ft. The bridge deck varies from elevation 314.75 at the south end to 315.6 at the north end.

The Central Vermont Railroad bridge is a 3 span plate girder bridge with clear spans varying from 75 ft. to 80 ft. The bottom of the girder is at about elevation 308. The girder is approximately 8 ft. high. The top of the rails is about elevation 312.3. The total waterway opening is about 3300 sq. ft.

The Main St. bridge over the Quaboag is a two span steel beam bridge. Each span is 53.5 feet clear and the bottom of the steel beams is at approximately elevation 309. The road surface is at elevation 312.4. The total waterway opening is about 1700 sq. ft.

As previously indicated these bridges were all flooded by the 1938 and 1955 floods with some of the flow going around the ends and over the top of the bridges. The constrictions accounted for 4 to 5 feet of the flood stage upstream from Main St.

#### C. Route 20 Area

In the area near Route 20 along the Quaboag River, damage resulted from flooding in 1955 and to a somewhat smaller extent in 1938. The water passage of the Route 20 bridge, a three span masonry arch structure, is only 900 sq. ft. From the bridge, the road slopes down toward the east and reaches a minimum elevation of 308.28 at the low point where the road passes under the railroad tracks. The underpass is only about 3 feet above water surface in the river at normal low flow.

During the 1955 flood the road at the underpass was flooded to elevation 323 with a depth of about 15 feet, and the water was about 5 feet deep at the center of the bridge. During this flood the Town of Palmer was completely isolated. The parking lot of the Wickwire Spencer Steel Co. was inundated to an average depth of 13 feet. The plant itself had water over the first floor, varying with floor elevation, to as much as 5 feet. This plant covers 450,000 sq. ft. of area of which approximately 150,000 sq. ft. have been completed since the 1955 flood. The plant at present employs about 1,400 people. The 1955 flood resulted in extensive direct damage to machines, inventory, and stock in process as well as the indirect loss of

wages and production profit. Two buildings on the south side of Route 20 were also flooded.

D. Bridge St. Area (Palmer)

In the Bridge St. area there are about 17 buildings below the high-water line, 3 of which were apparently abandoned as a result of the flood. This includes a garage of the Palmer Highway Department, the office and printing plant of the Palmer Journal Register and the lumber yard at the west end of Foundry St. A group of oil tanks is also situated in this area, the water reached elevation 328 during the 1955 flood; the average elevation of the ground is about 312 so a large portion of this area was covered by approximately 16 feet of water.

### III - DESCRIPTION OF DRAINAGE AREAS

#### A. General

The Chicopee River is formed at Three Rivers by the confluence of the Swift, Ware, and Quaboag Rivers. The total natural drainage area above Three Rivers is nearly equally divided among the three tributary streams. The tabulation below shows the areas tributary to river gaging stations, operated by the Surface Water Branch of the U. S. Geological Survey, and the total area at Three Rivers. Also shown are the areas now controlled by Quabbin Water Supply Reservoir and soon to be controlled by Barre Falls Flood Control reservoir, and the area below these reservoirs.

<u>Location</u>	<u>Natural Drainage Area (Square Miles)</u>	<u>Controlled by Storage (Square Miles)</u>	<u>Net Drainage Area (Square Miles)</u>
Swift River at West Ware	188	186	2
Swift River at Ware River	215 <sup>(1)</sup>	186	29 <sup>(1)</sup>
Ware River at Gibbs Crossing	199	57	142
Ware River at Three Rivers	220	57	163
Quaboag River at West Brimfield	151	-	151
Quaboag River at Three Rivers	212	-	212
Chicopee River at Three Rivers	647	243	404

(1) Includes the 11 sq. mi. Jabish Brook watershed, the normal flow of which is diverted to Springfield Reservoir.

The Chicopee River system is fan-shaped, being built up of its three principal tributaries. It is the largest tributary of the Connecticut River and the largest river basin entirely within the Commonwealth, 90% of which is above Three Rivers. The basin contains many natural lakes and ponds, the largest of which is Quaboag Pd. (512 acres) in the Town of Brookfield. The general topography is relatively gentle with rolling

hills and several upland plains. Elevations vary from about 300 feet to about 1500 feet on the slopes of Wachusett Mt. The soils are relatively pervious, being made up primarily of glacial drift.

#### B. Swift River

In its natural state the Swift River drains a total of 215 square miles flowing generally south from its headwater in North New Salem to its confluence with the Ware River just above Three Rivers. In 1939 Quabbin Reservoir was completed. This reservoir has a total drainage area of 186 square miles and a water surface area of 39 square miles at the spillway crest. The reservoir is operated by the Metropolitan District Commission primarily for municipal water supply, but substantial flood control benefits are incidentally provided, to the extent of providing almost complete control of record floods above the reservoir. The effect of this reservoir on flood peaks will be further discussed under the section "Flood Control Storage and Diversion".

Of the 29 square miles below Quabbin, 11 square miles on Jabish Brook is above a canal which diverts water to Springfield Reservoir. It is assumed that during large floods the capacity of the diversion works would be exceeded and essentially all of the flow of Jabish Brook would be tributary to the Swift.

#### C. Ware River

Originally the Ware River had a drainage area of 220 square miles above Three Rivers not including the Swift River. At Barre Falls the Corps of Engineers is presently constructing a flood control dam. The drainage area above this dam is 57 square miles and its storage capacity is equivalent to 9 inches of runoff from the drainage area. Downstream

from the Barre Falls Dam the Metropolitan District Commission has a diversion works through which water can be diverted from the Ware River to either or both Quabbin and Wachusett Reservoirs. The drainage area above the diversion is 97 square miles including the area above Barre Falls Dam. Thus of the 220 square mile drainage area of the Ware River 57 square miles may be considered completely controlled and an additional 40 square miles are partially controlled. The effects of this control also will be discussed in the section "Flood Control Storage and Diversion".

#### D. Quaboag River

There is no artificial storage of significant flood control benefit on the Quaboag River. There are numerous natural ponds and lakes comprising about 2.5% of the total drainage area which will continue to have a beneficial effect on peak flood discharge as they have in the past.

Investigations have been made by the Corps of Engineers of a possible flood control site at West Brookfield. The site would be expensive to utilize because of poor foundation conditions and the major railroad and road relocations required. Furthermore a reservoir here would eliminate a substantial amount of existing valley storage.

It appears that plans for this or alternative flood control storage on the Quaboag are so tenuous that they cannot be counted upon at the present time. This leaves the entire 212 square mile drainage area of the Quaboag tributary to Palmer and Three Rivers.



#### IV - DESCRIPTION OF FLOODS

##### A. Rainfall

About one week before hurricane "Diane", hurricane "Connie" had deposited from 3 to 5 inches of rain over the Chicopee basin on August 11, 12 and 13. Beginning in the afternoon of August 17 or the morning of August 18 the rain accompanying hurricane "Diane" began. In the 48 hour period, from noon August 17 to noon August 19, 17-1/2 inches were recorded at West Brookfield.

Plate R6 shows the Chicopee drainage area above Three Rivers, divided into the three tributary areas. On this map the isohyetal lines indicate depths of rainfall in inches for the four-day period August 17-20, 1955. As indicated by the map the average depth of rainfall on the Quaboag was about 15 inches. The average depth on the Ware River basin was about 9 inches varying from 14 inches at Three Rivers to less than 5 inches on the upper reaches. The average depth on the Swift River below Quabbin was about 14 inches.

The September 1938 flood was also associated with a hurricane storm. Similarly, there had been previous general rains averaging between 1 and 2 inches over this drainage basin. Between September 17 and 21 an average of 12 to 13 inches fell over the entire basin above Three Rivers. In the 1938 storm the maximum rainfall quantity occurred over the upper Ware basin near Barre and amounted to about 16 inches.

The March 1936 flood was caused by rain augmented by snow melt. The general period of precipitation extended from March 9 to March 22 with the largest rainfall occurring on March 18. The total rainfall for this period above Three Rivers was about 7 to 8 inches with an equivalent water content

of 4 to 5 inches in snow accumulation at the beginning of the period on March 9.

Both the 1938 and 1955 floods were associated with hurricane storms. Hurricane storms have occurred in New England since early colonial times, with the first record of a hurricane dating back to 1635. Blue Hill Meteorological Observatory, Milton, Mass. and others cite references to more than 20 subsequent hurricanes with a frequency of 5 to 10 such storms per century with "one that is especially fierce and widespread in each century and a half". Generally, hurricanes in New England have not been accompanied by excessive rain storms and the 1938 rain was the product of more than one meteorological disturbance.

#### B. Flood Discharge

The relative magnitude of floods may be compared by the maximum rate of flow, or peak discharge. The peak discharge is also used in analyzing the effects of changes in drainage basin and channel capacity brought about by man made features such as storage dams, bridges or channel improvements. The following table shows the peak discharge recorded for floods at Three Rivers.

<u>Flood</u>	<u>Rate of Flow</u> <u>(Cubic feet per second)</u>
March 19, 1936	20,000
September 21, 1938	43,000
August 19, 1955	38,000

No other flood during the period of record of the gaging station at Indian Orchard, 1928 to the present, has exceeded 7,000 cfs. From the three upstream gages, it is estimated that the maximum flood between 1912 and 1928 was not in excess of 10,000 cfs.

### C. Flood Control Storage and Diversion

As indicated under Section III "Description of Drainage Areas", the completion of Quabbin Reservoir has considerably modified the flood producing potential of the basin. For the 1955 flood runoff of approximately 4.5 inches and with the reservoir initially 2 feet below spillway crest no outflow occurred. Had Quabbin not been built, the 1955 peak flood flow at Three Rivers would have been about one-fifth larger. Had Quabbin Reservoir been complete and full to the spillway crest before the 1936 and 1938 floods, the discharge from the area above the dam would have been reduced from 7590 cfs and 5540 cfs, to 2350 cfs and 1100 cfs, respectively. With the reservoir initially one foot below the spillway crest, the peak discharge from these floods would have been reduced to 1000 cfs and zero respectively. This reduction in outflow is due to the fact that an increase in water surface is required to cause the spillway to discharge, but this same increase in water surface over the entire 39 square miles of lake area represents a large volume of temporary storage above the spillway crest. For floods of the magnitude of "Diane" and smaller it is concluded that the flow contributed by the area above Quabbin will be minor.

The completion of Barre Falls dam and reservoir will provide a high degree of flood control for the 57 square mile drainage area above the dam. The capacity of this flood control project will be exceeded so rarely that its drainage area may be neglected in considering flood protection for Palmer.

The 40 square miles below Barre Falls and above the Metropolitan District Commission diversion on the Ware River may receive some benefit from the operation of the diversion during floods. The capacity of the

diversion is 890 cfs to Quabbin alone, and 2950 cfs when diverting to both Quabbin and Wachusett Reservoirs. During "Diane" about 880 cfs was diverted. Diversion to Wachusett is done only for extreme conditions and should not be relied on in designing flood protection for Palmer.

The effect of these modifications is to reduce the effective drainage area upstream from Three Rivers from 647 square miles to 404 square miles. Analysis of the 1936, 1938 and 1955 storms shows that if they were to re-occur in the future following completion of Barre Falls dam the peak discharge at Three Rivers would be approximately as follows:

<u>Flood</u>	<u>Modified Flood Peak cfs</u>
1936	14,000
1938	32,000
1955	37,000

Comparison with the tabulation of the recorded flood peak shows that 1936 and 1938 would have been reduced one-third and one-fourth respectively. The reduction of 1955 was only 1000 cfs as the effects of Quabbin Reservoir and Ware River diversion are already included in the record. Furthermore, the rainfall which produced this flood was much lighter over the Barre Falls drainage area than elsewhere in the basin, so for this particular rainfall distribution little flood control benefit would have resulted from operation of Barre Falls. For future condition of the drainage basin the 1955 storm would produce the largest flood of record.

#### D. Frequency of Floods

In studying floods it has been found that records of flood discharge for a particular watershed covering a long period of years can be arranged in sequence and subjected to approximate statistical analysis. By such

studies the average frequency or recurrence interval of floods of various sizes can be estimated, the larger the flood the larger its average recurrence interval, and conversely. For example a flood of such size that it is equaled or exceeded 10 times in 100 years of record has an average recurrence interval of 10 years and may be referred to as a 10 year flood. Based on rainfall statistics and meteorological studies, regional "maximum" rainfall quantities and intensities may be assumed. Based on this assumed rainfall "maximum" and the watershed characteristics, the magnitude of the "maximum probable flood" may be estimated.

Often, the flood record contains one or more super-floods which are very much larger than the other floods recorded. If the record is short it provides poor evidence of the recurrence interval of these extraordinary floods. This is just the case with the record of the Chicopee. When adjusted for future watershed storage conditions the 1938 and 1955 floods are between 2 and 3 times the 1936 flood which actually itself was about 2 times larger than any other flood in 44 years of record. From records of previous large floods and the rainfall which caused them it seems certain that the 1938 and 1955 floods were larger than any floods since settlement of the area.

The recurrence intervals of these super-floods can be indirectly estimated by using, in place of flood records, rainfall frequency data, which is more readily analyzed by statistical methods. For the Chicopee basin, due to its physical characteristics, the flood peak will depend primarily upon the amount of rainfall occurring during the two-day period of maximum rainfall in a storm. Data available from the Weather Bureau, Department of Agriculture, and others indicate that a two-day rainfall of about 7 inches has a recurrence interval of 100 years for this area.

In 1945 Messrs. Kinnison and Colby of the U. S. Geological Survey, Boston, published a paper, "Flood Formulas Based on Drainage Characteristics", for streams in Massachusetts. The formulas they derived give the magnitude of flood peaks having probable recurrence intervals of 15, 100, 1000, years and the "maximum probable flood". Incidentally they used Swift River at West Ware, Ware River at Gibbs Crossing, Quaboag River at West Brimfield, and Chicopee River at Bircham Bend (gage now at Indian Orchard), as some of the key stations from which to derive their formulas. The formula for the 100 year flood is based on approximately 6 inches of runoff. This corresponds closely to a 100 year rainfall of 7 inches in view of the fact that the rainfall will be decreased by infiltration amounting to at least one inch.

Using the flood peak computation by Kinnison and Colby making due allowance for flood storage and diversion, it is estimated that a flood of 28,000 cfs on the Chicopee and 14,000 cfs on the Quaboag has an average recurrence interval of 100 years. The word average requires particular emphasis since two floods exceeded this discharge within 18 years. Large floods may occur at any time even in the same year, but in a long period of years it is believed that the above limits will not be exceeded more than once in 100 years on the average. On a similar basis the 32,000 cfs anticipated from a repetition of the 1938 storm has an average recurrence interval of 200 years and the 1955 flood has a 400 year recurrence interval.

#### E. Selection of Flood to Protect For

Flood protection for the "maximum probable flood" cannot be economically justified. The degree of flood protection should be correlated to the severity and frequency of flood damage that is to be prevented and the



cost of providing such protection. As an example many federal flood control dams are designed to provide protection from a flood with a recurrence interval of about 100 years, but minor drainage work and storm sewers are normally designed to provide only a 5 or 10 year flood.

Since the damage in the last flood was confined primarily to inventory, personal property, loss of production, and general nuisance rather than extensive loss of life and destruction of structures, it is believed that protection against such a flood with a recurrence interval in the order of 400 years is not economically justified, and no flood larger than the 100 year flood needs to be considered.

Plans are presented in Section V "Flood Protection Plans" providing varying degrees of protection for the Three Rivers and Route 20 Areas. One plan would provide protection from a "70 year flood" of 24,000 cfs on the Chicopee and 12,000 cfs on the Quaboag. The other plan would protect for a "100 year flood" of 28,000 cfs on the Chicopee and 14,000 cfs on the Quaboag.

## V - FLOOD PROTECTION PLANS

### A. Three Rivers Area

As previously described, the flood protection at Three Rivers is associated with both the Three Rivers Dam and the bridges. In order to pass the "70 year flood" and lower the flood level at Main Street in Three Rivers to elevation 310, a stage which would result in no flooding of significance in Three Rivers, it is necessary to increase the spillway capacity at Three Rivers Dam, and increase the waterway area and clearance to pass debris at the three bridges.

Plate R2 shows a Spillway Section to Pass the "70 year flood" with the existing spillway crest lowered 3 feet, to elevation 296.3 ft., for its entire 210 ft. length. The height of the flashboards would be increased from 2 ft. to 5 ft. to maintain the normal pond at its present level. In time of flood these flashboards would release, consequently the flood stage at the dam would be 3 feet below the stage which would obtain for the same discharge under existing conditions.

Plate R3 shows a plan to increase bridge opening and clearance.

The Bridge Street masonry arch bridge would be removed to elevation 300. On this foundation new piers and abutments would be constructed for a 3 span steel beam supported deck, similar to the existing Main St. bridge. The bottom of the steel beams would be at elevation 311. The deck of the bridge would be replaced at about its present elevation.

The Central Vermont Railroad bridge would be raised 4 feet by jacking it up and adding to the top of the existing piers and abutments. The railroad approaches to this bridge would be regraded on a 1% slope each way from the bridge. This work could be done in small increments to maintain

the track open for traffic. The railroad siding crossing at Bridge St. would also require regrading.

The Main St. bridge would also be elevated 4 feet by jacking and adding to the existing pier and abutments. Raising this bridge would require raising the approaches on Main St. and East Main St. which in turn would require raising the fire station. To provide access to the business district on East Main St. and the group of stores on the north side of Main St., retaining walls would be built at the curb line to retain the roadway fill and the sidewalk would be left at its present elevation. The elevation of the roadway would vary from a maximum of about 3 ft. to zero above the adjacent sidewalk elevation. This work would probably require the removal of the two small buildings on the north side of East Main St. nearest the bridge.

The modification of the spillway in this manner together with the raised bridges as shown on Plate R3 would pass a flood of 24,000 cfs peak discharge on the Chicopee which is estimated to be a "70 year flood". The raised bridges would provide 3 feet of clearance above the estimated water surface elevation to prevent clogging with debris.

In order to pass 28,000 cfs estimated as the "100 year flood", a greater increase in spillway capacity of the dam would be necessary. Plate R2 shows the enlargement of the spillway capacity at the dam by removing a section of the existing spillway 116 feet long and 23 feet deep and rebuilding in this opening one 24 feet wide by 21 feet deep taintor gate and two 36 feet wide openings controlled by 21 feet deep stanchion flashboards, with the necessary piers, operating bridge, and hoist equipment. This would permit passing 28,000 cfs with a water surface elevation of 300 feet at the dam.

The combined effect of deepening the spillway at the dam and increasing the bridge waterway and clearance shown on Plate R3 would permit passing 28,000 cfs with the water surface upstream from Main St. bridge at about elevation 310 ft. If the gates had been installed at the dam and the bridges modified prior to "Diane", assuming the encroachment on clearance under the bridges did not result in clogging by debris, the flood level would have been approximately 5 feet lower than was experienced, which is indicative of the benefit in the event of floods larger than 100 year flood.

To provide protection for the 100 year flood by alteration of the spillway alone would not be feasible since a further enlargement of the spillway would not result in lowering the flood water surface at Three Rivers unless the channel from the downstream end of White Aircraft building to just upstream of the Main St. bridge is enlarged by costly excavation.

Another plan of protection for the 100 year flood is shown on Plate R4. This plan does not include any work to the dam. As in the previous plan the bridge at Bridge St. would be removed to elevation 300 and replaced by a new 3 span steel beam, concrete deck bridge. The deck would be raised 4 feet, and the elevation of the bottom of the beams would be increased to elevation 315. The railroad bridge and approaches would be raised 8 feet and the Main St. bridge and approaches would also be raised 8 feet.

For this condition the water surface upstream from Main St. for the 100 year flood would be at elevation 314. Since this water surface is higher than part of the area it is desired to protect, levees would be

required. Levees would extend from Bridge St. along both banks of the Chicopee River to the railroad bridge. The fire station would be raised above the flood stage in order to provide access. On the west bank of the Quaboag the additional embankment beneath the railroad would also serve as a levee from the railroad bridge to a point about 400 ft. south of Main St. From this point upstream the downward sloping railroad fill would be too low and a levee would be built on the river side of the railroad extending for a distance of approximately 1200 feet above Main St. On the east side of the river a levee would start opposite the end of River St. and extend south along the Ware River ~~tieing~~ into the east end of Main St. bridge. Continuing on the south side of Main St. the levee would extend up the Quaboag for a total length of 2500 feet. On the west bank of the Ware a levee 1000 feet long would run from the Bridge St. bridge to high ground above the Hampden plant. A 4 ft. high concrete flood wall would be built from the southwest corner of Bridge St. bridge along the river side of the White Aircraft parking lot and tie into the northeast corner of the plant.

This scheme, while it does not disturb the dam, has the disadvantage of greater cost. Furthermore it would result in water surface in the Route 20 area, for the 100 year flood, two feet higher than the plan with increased spillway capacity. The levees would be constructed with a free-board allowance for waves and settlement and would therefore probably withstand a flood somewhat in excess of the 100 year flood. In the event of a flood which did overtop the levees no benefit would be obtained. On the other hand the plans with increased spillway capacity at the dam would provide substantial benefits for floods in excess of the 100 year flood. The areas inside the levees would require drainage by pumping when the

stage of the river is above elevation 310. Three pumping installations would be needed, each with diesel or gasoline engine power source to assure their operation in times of flood when electric power might fail.

The Three Rivers area may be protected for a flood of smaller magnitude by doing only part of the work contemplated. By raising the three bridges as shown on Plate R3, without any change in the existing spillway, a flood of about 20,000 cfs on the Chicopee with an estimated average recurrence interval of 50 years can be passed. Similarly, by increasing the spillway capacity by the addition of the three gates shown on Plate R2, but without any modification of the bridges, 20,000 cfs can be passed. Hence by either increased spillway capacity or raised bridges, but not both, protection can be provided for the "50 year flood".

The estimated cost of protecting Three Rivers from the "70 year flood" is as follows:

Enlarge spillway capacity by lowering crest 3 ft.	\$ 60,000
Reconstruct Bridge St. bridge	140,000
Raise railroad bridge and approaches 4 ft.	85,000
Raise Main St. bridge and approaches 4 ft.	90,000
Total	<u>\$375,000</u>

The estimated cost of protecting Three Rivers from the "100 year flood" is as follows:

Enlarge spillway capacity by 3 gates	\$290,000
Reconstruct Bridge St. bridge	140,000
Raise railroad bridge and approaches 4 ft.	85,000
Raise Main St. bridge and approaches 4 ft.	90,000
Total	<u>\$605,000</u>

The estimated cost of the alternate method of protecting Three Rivers from the "100 year flood" without increasing the spillway capacity, is \$775,000.



## B. Route 20 Area

As discussed under "Flood Frequency" a flood on the Quaboag River with a peak discharge of 12,000 cfs is estimated as a "70 year flood" and discharge of 14,000 cfs as a "100 year flood". Enlarging the spillway capacity and modifying the bridges at Three Rivers would result in lowering the height of such floods at Route 20 about 3 feet below the height which would be reached for the same discharge under present conditions. However, the water surface just downstream from Route 20, including the benefit of the Three Rivers improvement, is estimated as elevation 314 and 315 for the "70 year" and "100 year" floods, respectively, which would still result in flooding.

Plate R5 shows a levee system to protect this area. The upstream end of the levee would start at the railroad embankment south of Route 20, about 300 ft. from the underpass, and run nearly parallel to the highway to the bend in the river, then turn to tie into the east abutment of the bridge. Downstream from the bridge the levee would continue along the river edge of the Wickwire Spencer parking lot. The levee would extend along the river about 1500 feet downstream from the highway before turning northeast to terminate on high ground north of the plant. For the "70 year flood" the top of the levee would be at elevation 317 upstream of Route 20 and elevation 316 downstream. For the "100 year flood" the top of the levee would be one foot higher, elevations 318 and 317, upstream and downstream of the highway, respectively, as shown on Plate R5.

The waterway of the existing Route 20 bridge is only 900 square feet. In order to pass floods of this magnitude and provide clearance this bridge would have to be rebuilt. The foundations of the existing abutments could

probably be utilized but otherwise a completely new structure would be required. A two span steel beam bridge with a new center pier similar to the Main St. bridge in Three Rivers would be used with the bottom of the beams at elevation 318 for the "70 year flood" and 319 for the "100 year flood". The deck of such a bridge would be about 5 or 6 feet above the existing deck at the east end of the bridge, so the approaches to the bridge would have to be raised.

The cost of building the levees and reconstructing the bridge and approaches is estimated as \$385,000 for the "70 year flood", and \$425,000 for the "100 year flood".

The Wickwire Spencer present plant could be protected by increasing the minimum ground elevation near the buildings to elevation 317 or by bulkheading the openings below this level. Access to the plant could be protected by constructing a levee around the underpass. This levee would run west from the railroad embankment parallel to the highway on both sides and cross the road about 250 feet west of the underpass to allow for a 4 percent ramp slope from the low point in the underpass at elevation 308.28 to the top of the levee at elevation 317. This scheme would be less expensive than enclosing the entire area by levees. Although less expensive, this plan has the following disadvantages: A less desirable grade on Route 20 would result. The buildings on the south side of the highway and the parking lot would be left without protection. No protection is provided for an additional area into which the Wickwire plant could expand. The highway would still be subjected to occasional flooding between the end of the underpass levee and the east end of the bridge.

Flood protection of the Route 20 area from floods of this magnitude by channel excavation would not be economical.

### C. Bridge St. Area (Palmer)

Protection of the Bridge Street area would require an extensive levee. The upstream end of the levee would be at the railroad embankment southeast of the Socony Vacuum Oil Co. bulk plant. The levee would run generally east past the bulk plant then turn north crossing Bridge Street and the Boston and Albany railroad and terminate at the Central Vermont railroad embankment north of Foundry Street. The total length of the levee would be 2500 feet and is estimated to cost about \$200,000. Protection of the entire area is not believed economically justified by the damage prevented. Furthermore, the five buildings on the west end of Foundry St. can be protected by a short dike between the two railroad embankments for about 10% of the total cost and the office - printing plant building of the Palmer Journal Register can be protected from a 100 year flood by sealing the openings into the basement. The bulk plant tanks can be maintained with sufficient stock or otherwise prevented from floating. If the six buildings and tanks are thus protected the remaining unprotected property consists of four houses, three large garage buildings, one office and three abandoned houses. The incremental cost of protecting the eight occupied buildings by construction of the 2500 feet long levee would exceed their value.

Flood protection of this area from major floods by channel excavation would not be economical.

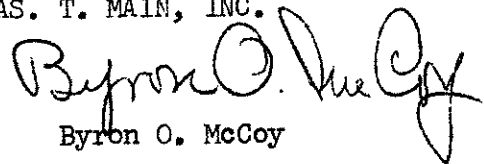
## VI - BASIS FOR COST ESTIMATES

The estimates are based on the preliminary layouts shown on the plates. These were predicated on hydraulic requirements as previously explained to provide protection from and capacity for floods estimated to have average recurrence intervals of 70 years and 100 years. Although detailed foundation investigations were not made, it is believed that the estimates are adequate for the purpose of this report. The estimates include allowance for loss of power production at the dam, temporary access to the work, temporary crossings at the highway bridges, purchase of property to be removed, and raising the fire station, in addition to the direct cost of the actual construction. Further allowance has been made for administrative overhead, engineering services for design and field supervision, and contingencies. The estimates are based on current prices and do not provide for possible price increases prior to undertaking construction.

Respectfully submitted,

CHAS. T. MAIN, INC.

By

  
Byron O. McCoy

BOM/n

Palmer - Forest Lake Takings for Rights of Way



1958 Reports

Palmer - Forest Lake Takings for Rights of Way. Acts of 1958 - Chapters 419-420.

City/Town	Palmer
Name	Holbrook, Stuart L
Name	Forest Lake Dairy Company Inc
Streets	Forest Lake Road
Streets	Gocse Pond Road
Streets	River Street
Water	Forest Lake
Water	Forest Lake
Water	Gocse Pond

and fifty-seven, therefore it is hereby declared to be an emergency law, necessary for the immediate preservation of the public convenience.

*Be it enacted, etc., as follows:*

Chapter 661 of the acts of 1957 is hereby amended by striking out section 4 and inserting in place thereof the following section: — *Section 4.* This act shall take effect as of May thirty-first, nineteen hundred and fifty-seven; but anything in sections one to three, inclusive, of this act to the contrary notwithstanding, the retirement allowance of any person who on May thirty-first, nineteen hundred and fifty-seven was either a member in service, or a member inactive except one who has been retired and who is receiving a retirement allowance, of a retirement system subject to sections one to twenty-eight, inclusive, of chapter thirty-two of the General Laws, shall in no event be less than the retirement allowance provided by the provisions of law in effect immediately prior to the effective date of this act; nor shall the benefit of any beneficiary of such person be less than the benefit so provided.

*Approved June 24, 1958.*

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CHAP. 417. AN ACT FOR THE REIMBURSEMENT BY THE COMMONWEALTH TO THE CITY OF QUINCY FOR CERTAIN LAND TAKEN FOR WIDENING ROBERTSON STREET.

*Be it enacted, etc., as follows:*

Notwithstanding any other provision of law, there shall be paid, subject to appropriation, from the Highway Fund, to the city of Quincy the sum of four thousand dollars for approximately four thousand feet of land taken by the commonwealth from the Gridley Bryant School playground for the widening of Robertson street.

*Approved June 24, 1958.*

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CHAP. 418. AN ACT AUTHORIZING THE COUNTY COMMISSIONERS OF HAMPDEN COUNTY TO ESTABLISH A RIGHT OF WAY FOR PUBLIC ACCESS TO FOREST LAKE IN THE TOWN OF PALMER AND OF AN AREA FOR THE PARKING OF VEHICLES CONTIGUOUS TO SAID RIGHT OF WAY.

*Be it enacted, etc., as follows:*

SECTION 1. The county commissioners of Hampden county are hereby authorized to lay out a right of way for public access to Forest lake in the town of Palmer and an area for parking contiguous thereto, in accordance with plans to be approved by the department of public works and showing the location and dimensions of such right of way and parking area. If it is necessary to acquire land for the purpose of laying out such right of way or parking area, said county commissioners shall at the time such right of way or parking area is laid out take such land by eminent domain under chapter seventy-nine of the General Laws. Any person sustaining damages in his property by the laying out of such right of way or parking area, or by specific repairs or improvements thereon, shall be entitled to recover the same under said chapter seventy-nine, provided, that the right to recover damages, if any, by reason of the laying out of such right of way or parking area shall vest upon the re-



ording of the order of taking by said county commissioners and that no entry or possession for the purpose of constructing a public way on land so taken shall be required for the purpose of validating such taking or for the payment of damages by reason thereof.

SECTION 2. The town of Palmer from time to time may make specific repairs on or improve such right of way or parking area to such extent as it may deem necessary, but neither the county of Hampden nor any city or town therein shall be required to keep such right of way or parking area in repair, nor shall it be liable for injury sustained by persons traveling thereon, provided, that sufficient notice to warn the public is posted where such way enters upon or unites with an existing public way.

SECTION 3. All expenses incurred by said county commissioners in connection with such right of way or parking area shall be borne by the county of Hampden, or by such cities or towns therein, and in such proportions as said county commissioners may determine.

SECTION 4. Said right of way or parking area shall not be discontinued or abandoned without authority therefor from the general court.

SECTION 5. Nothing in this act shall be construed to limit the powers of the department of public health, or any local board of health, under any general or special law.

*Approved June 24, 1958.*

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CHAP. 419. AN ACT AUTHORIZING THE ACQUISITION BY BOSTON EDISON COMPANY OF CERTAIN EASEMENTS IN AND OVER LAND OF THE COMMONWEALTH IN THE TOWN OF SUDBURY.

*Be it enacted, etc., as follows:*

Subject to the approval of the governor and council, the director of the division of fisheries and game, in the name and behalf of the commonwealth, may sell and convey to Boston Edison Company, an electric company organized and existing under the laws of the commonwealth, perpetual rights and easements for the transmission of electric current and for telephone and signal line purposes incidental thereto under, upon and over a strip of land not exceeding two hundred and fifty feet in width, said strip being a portion of the lands situated in the town of Sudbury held for the purposes of the division of fisheries and game, for such price and upon such terms and restrictions as may be agreed upon by said director and said company.

*Approved June 24, 1958.*

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CHAP. 420. AN ACT AUTHORIZING THE COUNTY COMMISSIONERS OF BERKSHIRE COUNTY TO ESTABLISH A RIGHT OF WAY FOR PUBLIC ACCESS TO MAHKEENAC LAKE, OTHERWISE KNOWN AS STOCKBRIDGE BOWL, IN THE TOWN OF STOCKBRIDGE AND OF AN AREA FOR THE PARKING OF VEHICLES CONTIGUOUS TO SAID RIGHT OF WAY.

*Be it enacted, etc., as follows:*

SECTION 1. The county commissioners of Berkshire county are hereby authorized to lay out a right of way for public access to Mahkeenac lake, otherwise known as Stockbridge Bowl, in the town of Stockbridge, and an area for parking contiguous thereto, in accordance with plans to be approved by the department of public works and showing the location and dimensions of such right of way and parking area. If it is necessary

COMMONWEALTH OF MASSACHUSETTS

Hampden, ss: County Commissioners' Meeting March 4, 1959

WHEREAS the General Court by an Act known as Chapter 418 of the year 1958 did provide for the establishment of a right of way for public access to Forest Lake in the Town of Palmer and of an area for the parking of vehicles contiguous to said right of way, and did further authorize and direct the County Commissioners of Hampden County to lay out said right of way and parking area; the said County Commissioners hereby give notice that they will meet for the purpose of viewing the premises and hearing all parties interested, at the office of the Selectmen of the Town of Palmer, Holbrook Building, 412 Main Street, Palmer, Massachusetts, on the 23rd day of March next at 3:30 P.M.; and it is ordered by the Commissioners that a copy of this notice be served by the Sheriff of said County, or his Deputy, upon the Clerk of the Town of Palmer in said County, fifteen days at least before the said 23rd day of March and that all other persons and corporations interested therein be notified, by publishing a copy of this notice and this order thereon, twice in the Springfield Daily News and Springfield Union, and once in the Palmer Journal Register, public newspapers printed in said County, the last publication to be seven days at least before the time of said view and hearing, and that copies of this notice, or abstracts containing the sustance thereof and this order, be posted by said Sheriff or Deputy, in two public places in the Town of Palmer seven days before said 23rd day of March 1959.

Ralph P. Walsh )

: County

Thomas F. Sullivan )

: Commissioners

: of the County

March 6, 1959

Palmer Journal Register,  
Water Street,  
Palmer, Mass.

Dear Sirs:

Kindly publish the enclosed notice  
(Forest Lake, Palmer) in your newspaper on the  
following date:

March 12, 1959

Charge to County of Hampden and send  
newspapers to County Commissioners' Office, Court  
House, 37 Elm Street, Springfield, Mass.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_ Chairman.

W/N  
encl.

March 6, 1959

Springfield Union and Daily News,  
Legal Advertising,  
Fort Street,  
Springfield, Mass.

Dear Sirs:

Kindly publish the enclosed notice  
(Forest Lake, Palmer) in the morning and evening  
editions on the following dates:

March 9th and 16th, 1959

Charge to County of Hampden and send  
newspapers to County Commissioners' Office, Court  
House, 37 Elm Street, Springfield, Mass.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

W/N  
encl.

THE COUNCIL OF SPORTSMEN'S CLUBS  
of HAMPDEN COUNTY

March 30, 1959

Commissioners of  
Hampden County  
Hampden County Court House  
Springfield, Mass.

Gentlemen;

At the march meeting of this organization the secretary was instructed to inform you of the recommendations of the body regards the proposed rights of way for public access to Forest Lake, Buck Pond and Horse Pond.

The sights for entrance and parking suggested at Buck Pond met with 100% approval. The proposed entrance and parking sights at Horse pond were considered adequate, provided that if entrance to Pequoit Pond was difficult or impracticable consideration would be given to a separte entrance to that pond at a future date....under the proviso as set down buy the legislature.

The organization was not satisfied with the proposals made at the hearing at Forest Lake. The problem of going thru the culvert at summer low water plus the rank groth of weeds and pond lillys in the small pond (north side of river st.) plus the possible use of the areafor parking by other than fishermen and boat men makes this sight on the undesireable side. The council felt that an extention of fill on the right hand side of river st. wide enough for entrance and parking would be much more usefull.

We trust that you will give this latter your due consideration

Very truly yours,

/s/ George E. Urban

George E. Urban, Sec.protem

KENNETH C. SHERMAN  
Engineer-Surveyor  
PALMER, MASS.

C

O

P

Y

March 29, 1960.

DESCRIPTION OF A PARCEL OF LAND IN PALMER, MASS.,  
to be taken from STUART L. HOLBROOK for a public  
access to FOREST LAKE.

A certain parcel of land in Palmer, Hampden County, Mass., on the Northerly side of River Street, (1931 County Layout) sometimes called Forest Lake Road, bounded and described as follows:

BEGINNING at a point on the Northerly side of said River Street, at a corner of land of Stuart L. Holbrook, said point is 43.0 feet Westerly measured along the Northerly side of said street from a Hampden County Highway Bound which is S 78° 16' 05" W 61.84 feet from Station 28+63.99 in said Layout and running thence

Southwesterly in a curve to the right with a Radius of 1967.00 feet a length of 125.00 feet along the Northerly side of said River Street to a point at land of Stuart L. Holbrook; thence turning and running <sup>other</sup>

N 33° 42' 47" W about 15 feet along land of said Holbrook to the shore of Forest Lake; thence turning and running

Northeasterly following the shore of said Forest Lake about 128 feet to a point; thence turning and running

S 37° 21' 15" E about 23 feet along remaining land of Stuart L. Holbrook to the POINT OF BEGINNING.

Containing about 3,000 square feet of land.



April 7, 1960

To the Director,  
Division of Waterways,  
Department of Public Works,  
100 Nashua Street,  
Boston, Mass.

Re: Forest Lake, Town of Palmer.  
Chapter 418 Acts of 1958

Dear Sir:

There is being forwarded under separate cover, a tracing showing the right of way to Forest Lake, Town of Palmer, which has been approved by the County Commissioners of Hampden County on April 6, 1960, subject to approval by the Commissioners of the Department of Public Works.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Counsel.

May 5, 1960

To the Director,  
Division of Waterways,  
Department of Public Works,  
100 Nashua Street,  
Boston, Mass.

Re: Forest Lake, Town of Palmer.  
Chapter 418 Acts of 1958

Dear Sir:

On April 7, 1960, there was forwarded to your Division, a tracing showing the proposed right of way to Forest Lake in the Town of Palmer with the request that it be approved by the Commissioners of the Department of Public Works.

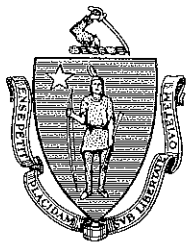
Subsequently, by telephone, it was learned that prior written approval by the County Commissioners of Hampden County must be given to the plan for the right of way and then thereafter submitted to your Division for its approval.

Will you, therefore, be so kind as to return to this office the tracing which was forwarded on April 7, 1960 so the approval of the County Commissioners may be stated thereon as well as the original and other tracings of the plan.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By



*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*  
*100 Nashua Street, Boston 14*

May 27, 1960

*Rec'd  
May 31, 1960*

William J. Foley, Counsel  
Hampden County Commissioners  
Springfield, Massachusetts

Dear Sir:

In reference to your letter of May 5, regarding action on proposed right of way to Forest Lake, Palmer, we have no record of having received the tracing plan and an extensive search has failed to turn it up.

Since this may result in your finding it necessary to prepare a new plan, I am sending you a print of such a plan such as was approved in another instance, which can serve as a sample as to arrangement for signing.

Please note that a key map is customarily provided, also that the taking should extend to the natural pond since this is a great pond increased in size by the dam at the outlet of the small pond to westward connected with Forest Lake.

Very truly yours,

A handwritten signature in cursive script, reading "R B MacKinnon".

ROBERT B. MAC KINNON

Copy of this letter sent to  
Mr. Kenneth C. Sherman, --- (Engineer)  
57 High Street,  
Palmer, Mass.

June 3, 1960

Mr. Robert B. MacKinnon,  
Department of Public Works,  
Division of Waterways,  
100 Nashua Street,  
Boston 14, Mass.

Re: Forest Lake,  
Town of Palmer.  
Chapter 418 Acts of 1958

Dear Sir:

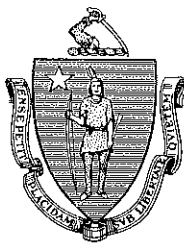
There is enclosed herewith a print showing the right of way to Forest Lake, Town of Palmer, which has been approved by the County Commissioners of Hampden County on June 1, 1960 subject to approval by the Commissioners of the Department of Public Works.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Counsel.

WJF/N  
encl.



*The Commonwealth of Massachusetts*

*Department of Public Works*

*Division of Waterways*

*100 Nashua Street, Boston 14*

June 7, 1960

Mr. William J. Foley, Counsel  
Hampden County Commissioners  
Springfield, Massachusetts

Dear Sir:

Received your letter of June 3, and print of the plan of proposed right of way to Forest Lake, Palmer.

However, we still must have the tracing plan bearing actual signatures of the County Commissioners and space for signatures of the Board of this Department, preferably in blocks prepared as shown on the sample plan sent with my letter of May 27.

Very truly yours,

A handwritten signature in cursive script, reading "R B MacKinnon".

ROBERT B. MAC KINNON  
Chief Waterways Engineer

June 20, 1960

Kenneth C. Sherman,  
Engineer-Surveyor,  
Palmer, Mass.

Dear Mr. Sherman:

Re: Forest Lake  
Town of Palmer.

May we have another tracing plan on the proposed right of way to Forest Lake. The tracing plan submitted by you was sent to Boston to the Division of Waterways and while received by that Division has in the meantime become lost. It is requested that you provide this office with a new tracing plan. If you have any questions, call me.

Very truly yours,

COUNSEL FOR HAMPDEN COUNTY  
COMMISSIONERS

WJF/N



July 28, 1960

Robert B. MacKinnon,  
Chief Waterways Engineer,  
Department of Public Works,  
100 Nashua Street,  
Boston, Mass.

Dear Mr. MacKinnon:

Re: Right of Way  
to Forest Lake, Palmer.

Enclosed please find tracing plan of  
right of way to Forest Lake, Palmer, approved and  
signed by the County Commissioners of Hampden County  
on July 13, 1960.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Counsel.

WJF/N  
encl.

Telephone ~~41~~ Daytimes

Atlas 3-3459

~~7330~~ Evenings

Atlas 3-7368

Successor to

R. O. & G. F. Dingman

## KENNETH C. SHERMAN

*Engineer - Surveyor*

PALMER, MASS.

July 8, 1960

Hampden County Commissioners,  
Elm Street,  
Springfield, Mass.

Dear Sirs:

Enclosed please find one linen tracing of the public access to Forest Lake. I suggest that you sign this copy when you meet on Wednesday, then have Miss Neilson mail it in the tube provided, to Joseph Merritt to be duplicated. They will in turn mail the original and the duplicate back to me and I will then make the required prints and mail them to you. Doing it this way will put signatures on all copies. If this is not feasible, just mail the tracing to the printer and I will forward your copies to be signed by you when I receive them.

This is the only copy of this plan that I have, so I must get it back to make any copies.

Very truly yours,

*Kenneth C. Sherman*  
m

Kenneth C. Sherman.

KCS:mcf

Encs:

P.S. I will be out of town until July 18. KCS

Tracing signed by Cty Comms on July 13, 1960 and  
mailed to Joseph Merritt on July 14, 1960.

Telephone ~~XX~~ Daytimes  
~~733CW~~ Evenings

Atlas 3-3459  
Atlas 3-7368

Successor to  
R. O. & C. F. Dingman

## KENNETH C. SHERMAN

*Engineer - Surveyor*

PALMER, MASS.

July 13, 1960.

DESCRIPTION OF 4 PARCELS OF LAND IN PALMER, MASS.,  
to be taken for a public access to FOREST LAKE.

Four certain parcels of land in Palmer, Hampden County, Mass., lying on both sides of River Street, 1931 County Layout, bounded and described as follows:

Parcel #1 - from Stuart L. Holbrook:

BEGINNING at a point on the Northerly side of said River Street, at a corner of land of Stuart L. Holbrook, said point is 43.0 feet Westerly measured along the Northerly side of said street from a Hampden County Highway Bound which is S 78° 16' 05" W 61.84 feet from Station 28+63.99 in said Layout and running thence

*125.0 feet*

Southwesterly in a curve to the right with a Radius of 1967.00 feet along the Northerly side of River Street to a point at other land of Stuart L. Holbrook; thence turning and running

N 33° 42' 47" W about 15 feet along land of said Holbrook to the shore of Forest Lake; thence turning and running

Northeasterly following the shore of said Forest Lake about 128 feet to a point; thence turning and running

S 37° 21' 15" E about 23 feet along remaing land of Stuart L. Holbrook to the POINT OF BEGINNING.

Containing about 3,000 square feet of land.

Parcel #2 - from Owner unknown:

BEGINNING at a point on the Northerly side of River Street, 1931 County Layout; said point is N 3° 11' 56" E 26.79 feet from Station 23+75.27 in said Layout and running thence

S 51° 23' 36" W about 547 feet along the Northerly side of said River Street to a point at land of Stuart L. Holbrook; thence turning and running

## KENNETH C. SHERMAN

*Engineer - Surveyor*

PALMER, MASS.

(2)

Description of land taken for public access to Forest Lake Cont'd.

Generally Southwesterly about 188 feet following the shore of Forest Lake to a point at the Northwesterly corner of Parcel #1 above described; thence turning and running

N 33° 42' 47" W about 35 feet to a point which is N 33° 42' 47" W 50.0 feet from the Northerly side of River Street; thence turning and running

Northeasterly in a curve to the left with a Radius of 1917.00 feet a length of 163.73 feet in a course parallel to, and 50 feet distant from the Northerly side of River Street to a point; thence turning and running

N 51° 23' 36" E about 460 feet in a course parallel to, and 50 feet distant from the Northerly line of said River Street to a point at land of the Forest Lake Dairy Company, Incorporated; thence turning and running

Generally Easterly, following the shore of Forest Lake about 70 feet to a point; thence turning and running

N 81° 23' 36" E about 50 feet to the POINT OF BEGINNING.

Containing about 30,750 square feet.

Parcel #3 - from Forest Lake Dairy Company, Incorporated:

BEGINNING at a point 50 feet Northwesterly from the Northwesterly line of River Street; said point is S 81° 23' 36" W 100.0 feet from the POINT OF BEGINNING of Parcel #2 above described and running thence

N 81° 23' 36" E about 50 feet along remaining land of Forest Lake Dairy Company, Incorporated to a point on the Northwesterly shore of Forest Lake; thence turning and running

Generally Westerly, following the shore of Forest Lake about 70 feet to a point; thence turning and running

N 51° 23' 36" E about 15 feet along remaining land of the Forest Lake Dairy Company, Incorporated to the POINT OF BEGINNING.

Containing about 550 square feet.

Telephone ~~217~~ Daytimes Atlas 3-3459  
~~733~~ Evenings Atlas 3-7368

Successor to  
R. O. & C. F. Dingman

## KENNETH C. SHERMAN

*Engineer - Surveyor*

PALMER, MASS.

(3)

Description of land taken for access to Forest Lake, Cont'd.

Parcel #4 - from Owner unknown:

BEGINNING at a point on the Southerly side of River Street  
1931 County Layout, at a point which is S 59°48' 22" E 49.38  
feet from Station 23+75.27 in the aforesaid County Layout and  
running thence

Generally Southeasterly to the shoreline of the natural pond.

The above described line is the Northeasterly line; the  
Southwesterly line is 50 feet from the said Northeasterly line  
and parallel to it.

## KENNETH C. SHERMAN

*Engineer - Surveyor*

PALMER, MASS.

July 21, 1960.

Hampden County Commissioners,  
Elm Street,  
Springfield, Mass.

Dear Sirs:

Thank you for your check of recent date.

Inclosed please find the linen tracing signed by the County Commissioners last week, 3 ozlid copies of the same, 2 copies of the descriptions of the 4 parcels to be taken, the plan of the Goose Pond access which Miss Neilson let me borrow and my bill for revising the plan.

Previously, your counsel and I thought it would be alright to make a preliminary plan to see if everyone involved would agree as to location etc., of the access, and not spend a lot of time making a final linen tracing, but apparently the Dept. of Public Works wants a complete and final plan Re: their letter to William J. Foley, Counsel, dated May 27, 1960.

I have therefore made the changes and additions suggested by the D.P.W. and made this new copy of the access. This involved going into the field again to make a further study in the Forest Lake Dairy Company, Inc., area, and incidentally, the owners of the Forest Lake Dairy Company have agreed to give the piece of land involved.

If this scheme does become the final plan I can have another linen tracing made of it by the printers.

Also, concrete bounds should be set at the street to locate the access.

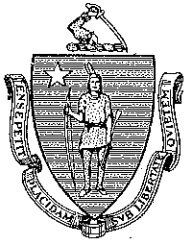
Very truly yours,

*Kenneth C. Sherman*

Kenneth C. Sherman.

KCS:mcf  
Encs:7





*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*  
*100. Nashua Street, Boston 14*

August 5, 1960

Hampden County Commissioners  
37 Elm Street  
Springfield, Mass.

Attention: William J. Foley

Gentlemen:

I am in receipt of the plan for the right of way to Forest Lake, Palmer accompanying your letter of July 28, 1960.

This right of way was authorized as you know by Chapter 418 of the Acts of 1958 and it is my impression and understanding that the intention was to provide access to the main body of Forest Lake, rather than at the small separated shallow portion of pond as proposed by said plan.

Please advise the reason for adopting a location on said small pond and explain how and to what degree it satisfies the need recognized by the General Court for access to Forest Lake.

It is further noted that the plan fails to specify a parking area as required by said Act and that the plan title cites a statute applicable to Goose Pond in Lee and Tyringham.

The plan is returned herewith for such alterations as seem advisable.

Very truly yours,

  
RODOLPHE G. BESSETTE

Director, Division of Waterways

Tracing plan of right of way to Forest Lake, Palmer, approved and signed by the County Commissioners of Hampden County on July 13, 1960 was handed to Kenneth C. Sherman, Engineer, Surveyor, in County Commissioners' Office on October 19, 1960. Plan to be revised.

This letter received in Hampden County  
Commissioners' Office on September 23, 1960.

September 22, 1960

Robert B. MacKinnon,  
Chief Waterways Engineer,  
Department of Public Works,  
100 Nashua Street,  
Boston, Mass.

Dear Mr. MacKinnon:

Will you please advise the County Commissioners of Hampden County as to whether the proposed tracing plan of right of way to Forest Lake, Palmer, has been approved by the Department of Public Works, Division of Waterways.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Counsel.

WJF/N

September 28, 1960

Mr. Kenneth C. Sherman,  
Engineer - Surveyor,  
Palmer, Massachusetts.

Dear Mr. Sherman:

Re: Forest Lake, Palmer.

Will you please call at the County  
Commissioners' Office in the near future. I wish  
to discuss with you certain corrections as suggested  
by the Massachusetts Department of Public Works.

Very truly yours,

COUNSEL FOR HAMPDEN  
COUNTY COMMISSIONERS

WJF/N

Telephone ~~47~~ Daytimes

ATlas 3-6210

~~X788XWX~~ Evenings

ATlas 3-7368

Successor to

R. O. & G. F. Dingman

## KENNETH C. SHERMAN

*Engineer - Surveyor*

PALMER, MASS.

October 20, 1960.

Hampden County Commissioners,  
37 Elm Street,  
Springfield, Massachusetts.

Gentlemen:

Enclosed please find the plan of a proposed access to Forest Lake, Palmer, Massachusetts, revised as per your instructions.

In reference to paragraph 3 of Division of Waterways Director Rodolphe G. Bressette's letter to you dated August 5, 1960, I suggest that you explain to him that this location seemed the most practical in view of the conditions found at Forest Lake, and that by taking land along River Street, (parcel 2) and then again on the Southeasterly side of River Street, (parcel 4) which runs Southeasterly to the natural pond, you have satisfied the need recognised by the General Court, which is to provide access to Forest Lake.

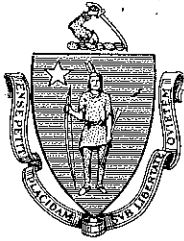
Very truly yours,

*Kenneth C. Sherman*

Kenneth C. Sherman.

KCS:mcf

ENC:



*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*  
*100 Nashua Street, Boston 14*

October 21, 1960

Mr. William J. Foley  
Hampden County Commissioners  
Springfield, Mass.

Dear Sir:

With reference to your letter of September 22nd inquiring as to whether the right of way to Forest Lake, Palmer has been approved, I send herewith copy of a letter sent to the County Commissioners by Mr. Bessette under date of August 5th, to which there apparently has been no reply.

It would seem from said letter that some action is now necessary by the County Commissioners.

Very truly yours,

*RB Mackinnon*  
ROBERT B. MACKINNON  
Chief Waterways Engineer

Received in Hampden County Commissioners' Office  
on October 27, 1960.

November 30, 1960

Corn. of Mass.  
D. P. W.  
Division of Waterways  
100 North St  
Boston 14 Mass.

Attention: Rodolpho J. Benetto, Director

Gentlemen: Re: Forest Lake Palmer  
Ref: Your letter Aug. 5, 1960

There is enclosed herewith a plan  
of the right of way to Forest Lake, Palmer.

The location of the right of way ~~as shown~~  
was determined to be the most practical in  
view of all ~~of the~~ conditions at Forest Lake. Further  
by taking land along River Street (Parcel 2)  
and by taking land on the westerly side  
of River Street (Parcel 4) which run southeasterly  
to the natural pond, the right <sup>of</sup> way then

provides an adequate access to the pond and  
restrooms in my opinion the legislative intent embodied  
in ~~Chapter 418, Act of 1958~~  
Parcel No 1. on the plan shows the

specific area for parking purposes.

V. T. J.

W. J. F.



111

November 30, 1960

Commonwealth of Massachusetts,  
Department of Public Works,  
Division of Waterways,  
100 Nashua Street,  
Boston 14, Mass.

Attention: Rodolphe G. Bessette, Director

Gentlemen:                    Re: Forest Lake, Palmer  
                                 Ref: Your letter Aug. 5, 1960

There is enclosed herewith a plan of the right of way to Forest Lake, Palmer.

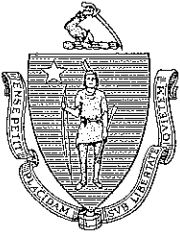
The location of the right of way as shown was determined to be the most practical in view of all conditions at Forest Lake. Further, by taking land along River Street (Parcel 2) and by taking land on the Southeasterly side of River Street (Parcel 4) which run Southeasterly to the natural pond, the right of way then provides an adequate access to the pond and satisfies in my opinion the legislative intent embodied in Chapter 418 Acts of 1958.

Parcel No. 1 on the plan shows the specific area for parking purposes.

Very truly yours,

COUNSEL FOR HAMPDEN  
COUNTY COMMISSIONERS

WJF/N  
encl.



*The Commonwealth of Massachusetts*

*Department of Public Works*

*Division of Waterways*

*100 Nashua Street, Boston 14*

January 12, 1961

Hampden County Commissioners  
37 Elm Street  
Springfield, Massachusetts

Attention: William J. Foley

Gentlemen:

Enclosed herewith please find signed tracing plan  
showing proposed right of way to Forest Lake in the Town of  
Palmer, which was approved by the Commissioners on Dec. 22, 1960.

Very truly yours,

A handwritten signature in cursive script, reading "R. G. Besette", with a small flourish at the end.

RODOLPHE G. BESSETTE  
Director Division of Waterways

jck

Certified Mail

No. 704322

July 26, 1961

Mr. Stuart L. Holbrook,  
River Street,  
Palmer, Mass.

Dear Sir:

In the matter of the establishment of a right-of-way for the public to Forest Lake in the Town of Palmer, Massachusetts, this will give you notice that for such right-of-way, land supposed to be owned by you has been taken for that purpose and you have been awarded One Dollar (\$1.00).

Said taking is indicated on plan filed in the Hampden County Registry of Deeds, and Clerk of Courts' Office, Springfield, Massachusetts, and Town Clerk of Palmer, and description sent to you herewith.

If you do not accept the award of damages, you may petition the Superior Court within one year from the time such right-of-way was entered upon or possession thereof was taken for the purpose of establishing a right-of-way, to determine the amount of such damages under Section 14, of Chapter 79 of the General Laws.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman

W/N  
encl.

Certified Mail

No. 704323

July 26, 1961

Forest Lake Dairy Company, Incorporated,  
River Street,  
Palmer, Mass.

Dear Sirs:

In the matter of the establishment of a right-of-way for the public to Forest Lake in the Town of Palmer, Massachusetts, this will give you notice that for such right-of-way, land supposed to be owned by you has been taken for that purpose and you have been awarded One Dollar (\$1.00).

Said taking is indicated on plan filed in the Hampden County Registry of Deeds, and Clerk of Courts' Office, Springfield, Massachusetts, and Town Clerk of Palmer, and description sent to you herewith.

If you do not accept the award of damages, you may petition the Superior Court within one year from the time such right-of-way was entered upon or possession thereof was taken for the purpose of establishing a right-of-way, to determine the amount of such damages under Section 14, of Chapter 79 of the General Laws.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_

July 28, 1961

To the Town Clerk,  
Palmer,  
Mass.

Dear Sir:

Enclosed herewith is an attested copy of the County Commissioners' Decree in the matter of the layout of a right of way for public access to Forest Lake in the Town of Palmer, which is self-explanatory. Plan is also enclosed.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

W/N  
2 encls.

Document #17120

COMMONWEALTH OF MASSACHUSETTS

Hampden, ss: County Commissioners' Meeting July 26, 1961

Acting under the provisions of Chapter 418 of the Acts of 1958, the County Commissioners of Hampden County now lay out a right of way for public access to Forest Lake in the Town of Palmer in accordance with a plan approved December 22, 1960 by the State Department of Public Works.

Forest Lake 1960 Layout in Palmer

The layout is located at River Street, Palmer, Massachusetts, beginning at a point in the Northerly Street line of River Street at the southeasterly corner of land of Stuart L. Holbrook.

AND the following described four parcels of land are taken in fee for the purposes of said right of way for public access by right of eminent domain under Chapter 79 of the General Laws and all acts in amendment thereof and in addition thereto. All land taken is located in the Town of Palmer in said County.

PARCEL NO. 1. A parcel of land supposed to be owned by Stuart L. Holbrook located on the northerly side of River Street bounded and described as follows:

BEGINNING at a point on the Northerly side of said River Street, at a corner of land of Stuart L. Holbrook, said point is 43.0 feet Westerly measured along the Northerly side of said street from a Hampden County Highway Bound which is S 78° 16' 05" W 61.84 feet from Station 28+63.99 in said Layout and running thence

Southwesterly 125.0 feet in a curve to the right with a Radius of 1967.00 feet along the Northerly side of River Street to a point at other land of Stuart L. Holbrook; thence turning and running

N 33° 42' 47" W about 15 feet along land of said Holbrook to the shore of Forest Lake; thence turning and running



Northeasterly following the shore of said Forest Lake about 128 feet to a point; thence turning and running

S 37° 21' 15" E about 23 feet along remaining land of Stuart L. Holbrook to the POINT OF BEGINNING.

Containing about 3,000 square feet of land.

PARCEL #2. A parcel of land supposed to be owned by Owner Unknown located on the northerly side of River Street bounded and described as follows:

BEGINNING at a point on the Northerly side of River Street, 1931 County Layout; said point is N 3° 11' 56" E 26.79 feet from Station 23+75.27 in said Layout and running thence

S 51° 23' 36" W about 547 feet along the Northerly side of said River Street to a point at land of Stuart L. Holbrook; thence turning and running

Generally Southwesterly about 188 feet following the shore of Forest Lake to a point at the Northwestern corner of Parcel #1 above described; thence turning and running

N 33° 42' 47" W about 35 feet to a point which is N 33° 42' 47" W 50.0 feet from the Northerly side of River Street; thence turning and running

Northeasterly in a curve to the left with a Radius of 1917.00 feet a length of 163.73 feet in a course parallel to, and 50 feet distant from the Northerly side of River Street to a point; thence turning and running

N 51° 23' 36" E about 460 feet in a course parallel to, and 50 feet distant from the Northerly line of said River Street to a point at land of the Forest Lake Dairy Company, Incorporated; thence turning and running

Generally Easterly, following the shore of Forest Lake about 70 feet to a point; thence turning and running

N 81° 23' 36" E about 50 feet to the POINT OF BEGINNING.

Containing about 30,750 square feet.

PARCEL #3. A parcel of land supposed to be owned by Forest Lake Dairy Company, Incorporated located on the Northwestern side of River Street bounded and described as follows:

BEGINNING at a point 50 feet Northwesternly from the Northwestern line of River Street; said point is S 81° 23' 36" W 100.0 feet from the POINT OF BEGINNING of Parcel #2 above described and running thence

N 81° 23' 36" E about 50 feet along remaining land of Forest Lake Dairy Company, Incorporated to a point on the Northwesterly shore of Forest Lake; thence turning and running

Generally Westerly, following the shore of Forest Lake about 70 feet to a point; thence turning and running

N 51° 23' 36" E about 15 feet along remaining land of the Forest Lake Dairy Company, Incorporated to the POINT OF BEGINNING.

Containing about 550 square feet.

PARCEL #4. A parcel of land supposed to be owned by Owner Unknown located on the southerly side of River Street bounded and described as follows:

BEGINNING at a point on the Southerly side of River Street 1931 County Layout, at a point which is S 59° 48' 22" E 49.38 feet from Station 23+75.27 in the aforesaid County Layout and running thence

Generally Southeasterly to the shoreline of the natural pond.

The above described line is the Northeasterly line; the Southwesterly line is 50 feet from the said Northeasterly line and parallel to it.

The layout and land takings above described are indicated on plan prepared for the County Commissioners of Hampden County dated July 9, 1960 on file in the Hampden County Registry of Deeds and Clerk of Courts Office also in the Town Clerk's Office and marked as follows:


Plan of a proposed access and parking area to Forest Lake, Palmer, Mass.

Surveyed for the HAMPDEN COUNTY COMMISSIONERS  
Scale 1" = 40' July 9, 1960

Kenneth C. Sherman  
Engineer - Surveyor  
Palmer, Mass.

Revised Oct. 20, 1960 to Change Chapter and Acts,  
and to add information concerning parking area.

AND the owners of the land over which said right of way is laid out are allowed until the first day of October next to remove therefrom their buildings, wood, timber or trees.



Ralph P. Walsh, County  
Thomas F. Pulliam, Commissioners  
William F. Hapley, of the County  
of Hampden

The foregoing report is filed and accepted, and thereupon it is ordered that the said right of way be a right of way for public access forever.

Edward G. Shea  
Clerk.

Telephone ~~47~~ Daytimes  
~~738~~ Evenings

Atlas 3-6210  
Atlas 3-7368

Successor to  
R. O. & G. F. Dingman

## KENNETH C. SHERMAN

*Engineer - Surveyor*  
PALMER, MASS.

September 14, 1961.

Hampden County Commissioners,  
Court House,  
Springfield, Massachusetts.

Gentlemen:

Commissioner Stapleton approached me yesterday regarding the name of the gentlemen who operate Forest Lake Park, Inc. I find they are Tony and George Lachowetz and their telephone number is Palmer, Atlas 3-9189, or Holyoke, Jefferson 2-4160. The mailing address is either Forest Lake Park, Palmer, or 1270 Montgomery Street, Willimansett, Mass.

Hoping this information will help you.

Very truly yours,

*Kenneth C. Sherman*

Kenneth C. Sherman.

KCS:mcf

September 21, 1961

Kenneth C. Sherman,  
Engineer - Surveyor,  
Palmer, Mass.

Dear Mr. Sherman:

The County Commissioners have directed me to write to you requesting that you talk to Tony and George Lachowetz whose address and telephone numbers were supplied by you in your letter of September 14, 1961 to the County Commissioners.

The County Commissioners have requested that you seek to obtain from these men free fill for the parking area at the public access and parking area at Forest Lake.

It is felt by the County Commissioners that you will be able to inform these gentlemen of the exact amount of fill in yards required for the parking area.

It is the understanding of the County Commissioners that these gentlemen were willing to furnish fill free for the parking area.

Will you please advise the County Commissioners of what you have learned after talking with these gentlemen.

Telephone ~~47X~~ Daytimes ATLAS 3-6210  
~~733X~~ Evenings ATLAS 3-7368

Successor to  
R. O. & G. F. Dingman

## KENNETH C. SHERMAN

*Engineer - Surveyor*

PALMER, MASS.

April 23, 1962.

Hampden County Commissioners,  
Court House,  
Springfield, Mass.

Gentlemen:

The parking lot at Forest Lake has been completed and two Concrete Bounds have been set at the two front corners. Stanley Wilk, the Highway Superintendant, had put in fill to form a parking area and ramp down to the water as shown on my previous plan.

My bill is enclosed.

Very truly yours,

*Kenneth C. Sherman*

Kenneth C. Sherman.

KCS:mcf

Copy of this letter sent to  
Mr. James Dowds on April 25, 1962.



# KENNETH C. SHERMAN

*Engineer - Surveyor*  
PALMER, MASS.

March 16, 1962

Mssrs. Tony & George Lachowetz  
1270 Montgomery Street  
Willimansett, Mass.

Gentlemen:

The Hampden County Commissioners have advised me that a taking for a public access to Forest Lake has now been made, and that construction on this project will start sometime next month.

Sometime during 1960, you agreed to give fill for this project, and I am wondering if you still are with that same thought. Could you let me know by phone or letter as soon as possible. I am enclosing a stamped self-addressed envelope for your answer.

Very truly yours,

*Kenneth C. Sherman*

Kenneth C. Sherman

KCS:is

cc: Hampden County Commissioners  
Elm Street  
Springfield, Mass.

Note to the Commissioners: Lawrence Miceli, of the Metro Drive-In Theater also is willing to give fill.

April 2, 1962

Board of Selectmen,  
Town of Palmer,  
Mass.

Re: Right of Way to Forest Lake.

Gentlemen:

This will confirm our conversation of  
Wednesday, March 28, 1962, relative to the above.

It would be appreciated if the Town of  
Palmer would clear the area of the right of way of  
brush and small trees and would then fill and cover  
the right of way with gravel which is available  
directly across the road and the open air theater.

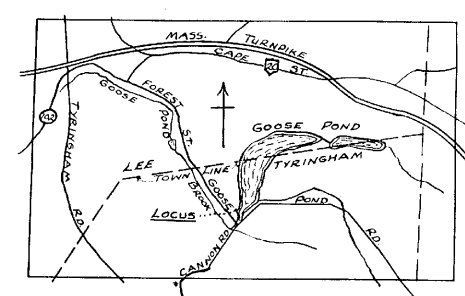
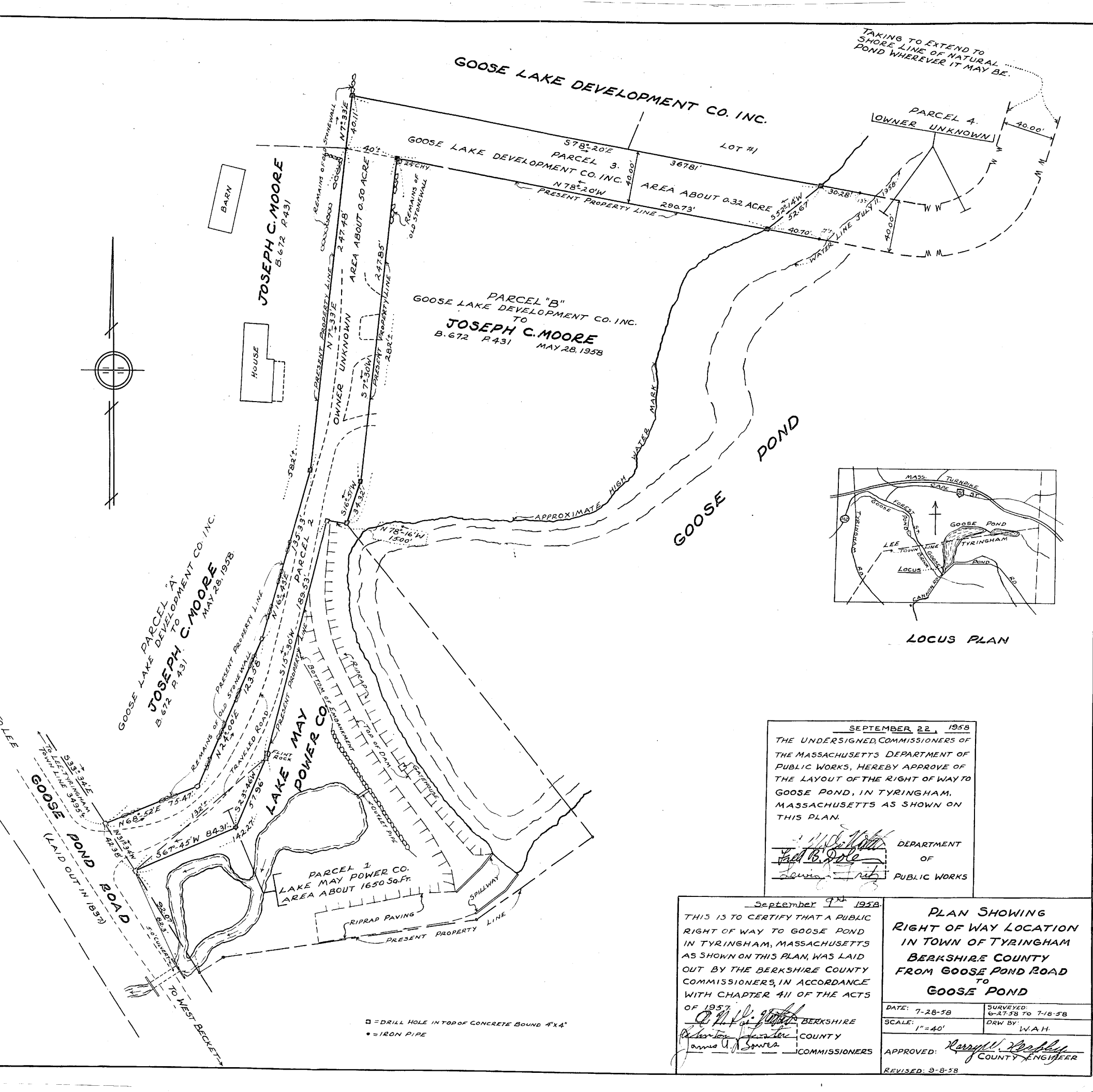
Mr. Kenneth Sherman of Palmer is  
thoroughly familiar with the location of the right  
of way and the location of the free fill which is  
available.

Your co-operation in this matter would  
be deeply appreciated.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Counsel.



LOCUS PLAN

SEPTEMBER 22, 1958

THE UNDERSIGNED COMMISSIONERS OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS, HEREBY APPROVE OF THE LAYOUT OF THE RIGHT OF WAY TO GOOSE POND, IN TYNGSBORO, MASSACHUSETTS AS SHOWN ON THIS PLAN.

*[Signature]* DEPARTMENT OF PUBLIC WORKS

September 9<sup>th</sup> 1958

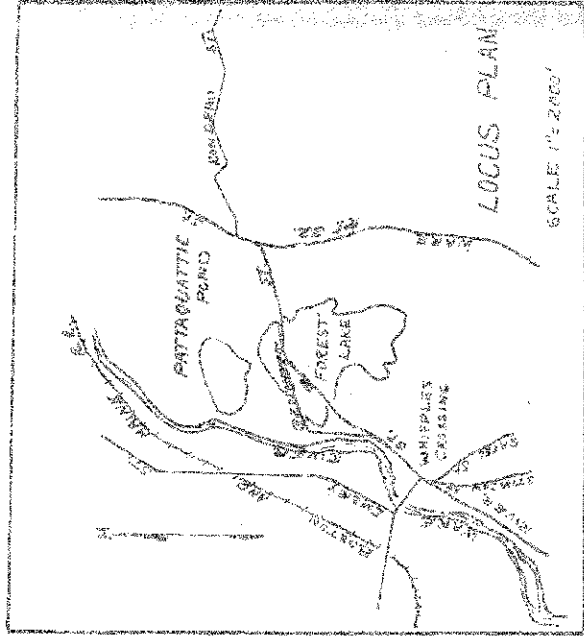
THIS IS TO CERTIFY THAT A PUBLIC RIGHT OF WAY TO GOOSE POND IN TYNGSBORO, MASSACHUSETTS AS SHOWN ON THIS PLAN, WAS LAID OUT BY THE BERKSHIRE COUNTY COMMISSIONERS, IN ACCORDANCE WITH CHAPTER 411 OF THE ACTS OF 1957.

*[Signature]* BERKSHIRE COUNTY COMMISSIONERS

PLAN SHOWING  
RIGHT OF WAY LOCATION  
IN TOWN OF TYNGSBORO  
BERKSHIRE COUNTY  
FROM GOOSE POND ROAD  
TO  
GOOSE POND

DATE: 7-28-58 SURVEYED: 6-27-58 TO 7-18-58  
SCALE: 1" = 40' DRW BY: W.A.H.

APPROVED: *[Signature]* COUNTY ENGINEER  
REVISED: 9-8-58



# THE BOOK OF DAYS

## HAMPDEN COUNTY COMMISSIONERS

2024.9.1360


 文部科学省  
 教育部



KENNETH C. SHEPHERD  
ENGINEER - SUPERVISOR  
PAULINE, MRS.

October 19, 1960 - Not final plan  
Plan to be Revised.

THE UNDERSIGNED, COMMISSIONERS OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS, HEREBY APPROVE OF THE LAYOUT OF THE RIGHT OF WAY TO FOREST LAKE, IN PALMER, MASSACHUSETTS AS SHOWN ON THIS PLAN.

DEPARTMENT OF  
PUBLIC WORKS

Jul 13, 1960

THIS IS TO CERTIFY THAT A PUBLIC RIGHT OF WAY TO FOREST LANE, IN PALMER, MASSACHUSETTS AS SHOWN ON THIS PLAN, WAS Laid OUT BY THE HAMPSHIRE COUNTY COMMISSIONERS, IN ACCORDANCE WITH CHAPTER 411 OF THE ACTS OF 1957.

William F. Hoffington  
Edward F. Hoffington  
Ralph S. Hoffington

HAMMIDEN  
COUNTY  
COMMISSIONERS



DEPARTMENT  
OF  
PUBLIC WORKS

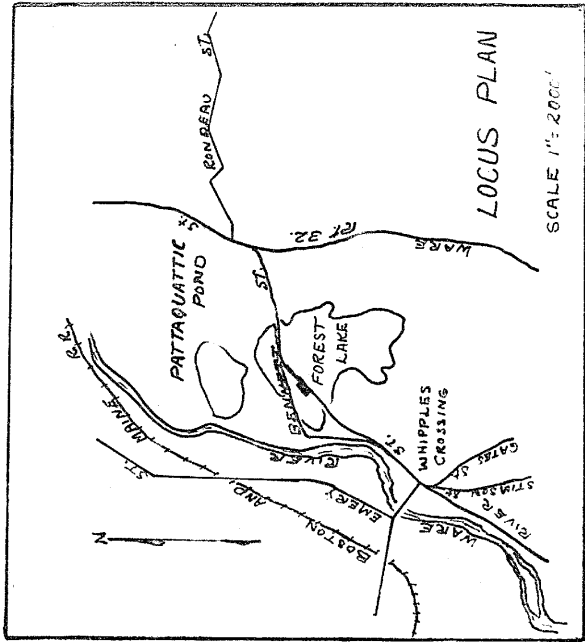
THIS IS TO CERTIFY THAT A PUBLIC RIGHT OF WAY TO FOREST LAKE, IN PALMER, MASSACHUSETTS AS SHOWN ON THIS PLAN, WAS LAID OUT BY THE HAMPDEN COUNTY COMMISSIONERS, IN ACCORDANCE WITH CHAPTER 41A OF THE ACTS OF 1957.

William T. Hightower  
Thomas J. Bellon  
Ralph S. Woolsh

KENNETH C. SHERMAN  
ENGINEER ~ SURVEYOR  
PALMER, MASS.



{October 19, 1960 — not final plan  
Plan to be Revised.





Palmer, Map 1958 - Forest Lake Boat Launch



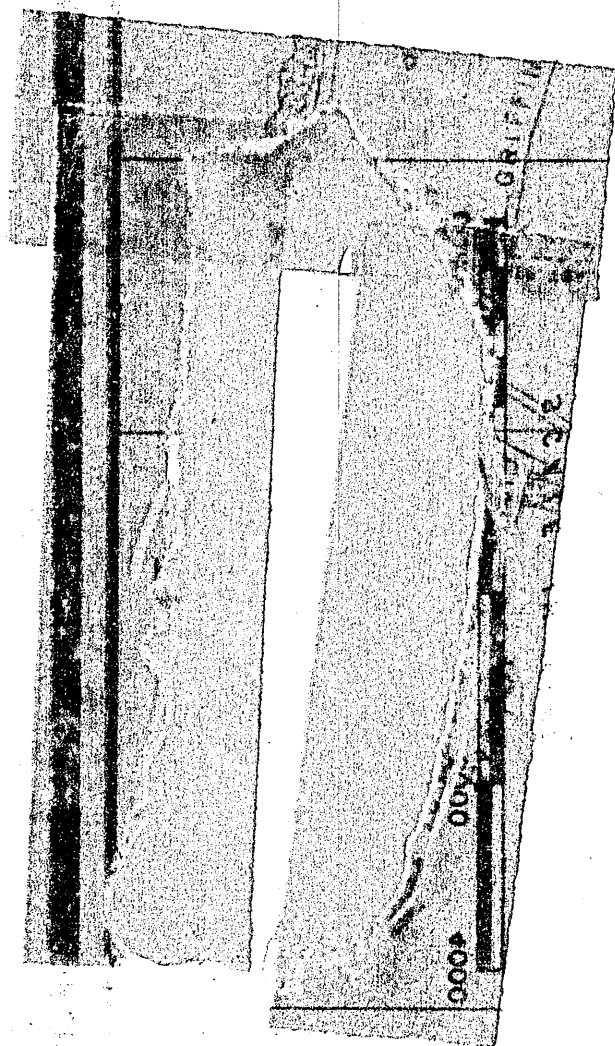
1958 Reports

Map of Palmer - 1958 - with a note and mark by F E Sieczkowski as to the location he believes would make a good boat launch area.

City/Town	Palmer
Name	Sieczkowski, F E
Water	Forest Lake



Frost Lake  
Palmer.



10/6/58

Hi Scotty:

I have marked the area with an x that would probably be most suitable for launching boats as well as being best suited for parking autos. There will be some delay in obtaining this property as the woman that owned the property passed away recently and the estate has not been settled.

This property is situated right next to a hard top road and is easily accessible. Sorry that I can't give you an alternate spot. Possibly you can consider property toward the back of the lake on the same side as indicated on the map. I checked with the assessors in Palmer and they informed me that the entire side is owned by the KERRIGAN people. Let me know if there is anything else that I can do to help you.

F. E. Szykowski



## Palmer Dam Inspections - 1956 - 1969



### 1956 Reports

#### Inspections by Tighe & Bond.

City/Town                  Palmer

Dam                          Otis Company Dam

Dam                          Midura Dam

Dam                          Palmer Town Farm Dam

Dam                          Holbrook Pool Dams

Dam                          Central Massachusetts Electric Company Dam

Dam                          Hinkson Paper Company Dams

Dam                          Sasur Dam

Dam                          McNitt Dam

Dam                          Worcester County Electric Company Dam

Dam                          Lions Club Dam

Dam                          Fish Hatchery Dams

Dam                          Textile Printing Company Dams

Dam                          Duda Dam

Dam                          Palmer Fire District Dams

Dam                          Massachusetts Comm Fish Hatchery Dams

Dam                          Self-Locking Carton Company Dams

Dam                          Thompson Lake Dam

Dam	Thorndike Fire & Water District Dams
Dam	Mongo Dam
Dam	Lizak Dam
Dam	New England Power Dam
Dam	Forest Lake Dam

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
189 HIGH STREET  
HOLYOKE, MASSACHUSETTS  
GEORGE H. McDONNELL  
PHILIP W. SHERIDAN

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL  
C-D Palmer

March 20, 1956

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

Gentlemen:

On March 8, 1956, the undersigned inspected the following dams in Palmer:

- A.    Fire District No. 1 - Upper Dam.  
This dam was found to be in satisfactory condition.
- B.    Fire District No. 1 - Lower Dam.  
A report has been submitted on this dam recommending additional spillway capacity.
- C.    Worcester County Electric Co. Dam.  
A separate report has been submitted on this dam, recommending the completion of the work of removal of timbers and planking from the Quaboag River.
- D.    V. V. McNitt Dam.  
The pond at this dam is drawn down and no water is in storage. Repairs are needed to the earth fill of the dam, particularly in the vicinity of the masonry spillway. Maintenance and repairs to the spillway and wing walls are desirable. These repairs should be completed and then inspected and approved before water is again ponded behind the dam.
- E.    Hinkson Paper Co. Dams.  
There are three dams belonging to the Hinkson Paper Company, though the property is now used by the Swift & Co. meat packing industry. The lower dam is breached and has been breached for a number of years. No pond is formed at this dam. The Middle Dam has been kept empty for years and even at time of heavy run-off the structure does not impound enough water to any depth to be dangerous to persons and property downstream. The Upper Dam is very shallow and to the right of the spillway a level of the natural ground is only slightly higher than the bottom of the pond. Thus, at time of high flow, storm run-off passes out of the pond over natural ground. The quantity of water ponded is so small that it is not dangerous to persons and property downstream.

Very truly yours,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/emmm

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
GEORGE H. McDONNELL  
PHILIP W. SHERIDAN

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

C.D. Palmer  
Oct. 25, 1956

The Hon. The Board of County Commissioners  
Hampden County Court House  
31 Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspection of dams in the Town of Palmer has now completed the inspection routine in this community and all dams have been examined one or more times during 1956. The following is a report on the condition of the various dams in the town of Palmer.

A. Central Mass. Electric Co. Dam

This dam was located on Quaboag River just south of the main line tracks of the Boston & Albany Railroad and of highway route No. 20. It was a timber dam used at one time for power purposes. During the flood of 1955 the timbers of the dam were damaged and a washout occurred around the abutment at the south end of the dam. Since the structure no longer is used for the purpose of power generation, the owners removed the dam entirely from Quaboag River rather than repair the structure. All planking, timbers, stone fill, etc., have been removed and there now is an unrestricted channel at the site of the old dam.

B. V.V. McNitt Dam

This dam is located south of Nipmuck Street and just northerly of highway route No. 20. The dam is a small earth structure with a masonry wall and masonry overflow. During the flood of 1955 the dam was topped and some earth fill was washed out on the downstream side of the masonry wall. There was some wash behind the sidewalls of the spillway. This minor damage has been corrected in part and maintenance work now going on at the dam will restore all washed out fill. In general, the dam is in good condition.

C. Hinkson Paper Co. Dams

These dams are located to the east of Breckenridge St. and downstream from the Palmer Water Works Reservoir. There are three dams in all--one located downstream of the old mill buildings and two located upstream of the mill buildings. The lower dam was breached many years ago and no pond has



been formed for some time by this structure. The middle dam is a very small earth embankment with a masonry box and pipe spillway. Little or no water is impounded behind this dam and conditions at the structure are not dangerous. The upper dam is very small. It is composed of earth and masonry. The dam has been abandoned for some time and the natural ground to the right of the old spillway is extremely low and acts as a swale. Though water can be impounded behind this dam, the quantity is exceptionally small and no danger results from any stored water.

D. Palmer Fire District #1 Upper Dam

This dam is located easterly of Breckenridge St. approximately 2000' upstream from the Hinkson dams. The structure is an earth embankment with a masonry spillway. No damage occurred to this structure during the flood of August, 1955. The dam is in very good condition.

E. Palmer Fire District #1 Lower Dam

This dam is located immediately downstream of the dam abovementioned. The structure is an earth embankment with a concrete spillway chute on the right side adjacent to the valley slope. During the flood of August, 1955, a breach was washed through the center of this dam and the pond completely emptied. Shortly after the flood, the breach in the dam was repaired as a flood project. The repair work was carried on in an excellent manner and today the dam is in good condition. In order to guarantee the safety of the structure, the Fire District has recently filed plans for raising the dam two feet and thus increase the spillway capacity. The crest of the spillway will not be raised and, consequently, a greater quantity of water will be able to pass the dam without topping the earth embankment.

F. Holbrook Pool Dam

The Holbrook Pool Dam was located just northerly of Shearer St. and immediately downstream of the old Mongo ice pond dam. This dam was an earth embankment with a tube and a masonry spillway. The dam was small and formed a pool for private swimming and recreational purposes. During the flood of August, 1955, the dam was washed through at the location of the chute spillway. This dam has never been repaired and no water is ponded at the present time. The owner should be advised to clean all debris, particularly wood, from the washout area.

C.D. Palmer  
Oct. 25, 1956, Cont.

G. Holbrook Pool Upper Dam

This dam was a small earth embankment with a chute, masonry spillway and an asphalt apron. The dam was built for the purpose of impounding water to be filtered before being discharged into the swimming pool immediately below. The earth embankment was washed out on the opposite side from the spillway chute. This washout has never been repaired and no water is ponded at this site.

H. Mongo Dam (Palmer Ice Co.)

This dam is located northerly of Shearer St. at the location of the access road to the new Toll Highway from Route No. 32. We have recently submitted a detailed report on this structure and have pointed out that the old dam has now been replaced with the highway fill.

I. Thorndike Fire and Water District Dams

These dams are two in number. They are very small and they are located on the headwater of a very small brook just easterly of Flynt St. and southerly of Warren St. These dams are located immediately adjacent to one another and consist of small earth embankments with wooden chute spillway flumes. During the flood of August, 1955, the lower dam was topped. No damage of consequence resulted. The upper dam was not topped. When last inspected, both of these dams had been improved by the addition of fill to the embankments and by the construction of new wooden spillway chutes. These dams are in very good condition and the only work remaining at the time of the last inspection was the placing of loam and the growth of a sod cover on the newly placed earth.

J. Lake Thompson Dam

This dam is located at the northerly end of Lake Thompson where the water of the lake overflows to form the brook that eventually drains to Forest Lake. The Lake Thompson dam is an earth embankment faced downstream with a stone masonry wall. The spillway at the dam is a masonry chute across the top of the earth embankment. During the flood of August, 1955, the dam was topped but protective work by the placing of sandbags on the dam prevented serious damage to the structure. In fact, no damage of consequence was caused by the flood. Since the flood, the spillway has been increased in capacity by extending the masonry and raising the earth fill of the embankment. This dam is in very good condition.

K. Palmer Town Farm Dam

This dam is a very small structure located southerly of Warren St. and approximately 1000' downstream from the

C.D. Palmer  
Oct. 25, 1956, Cont.

Thorndike Fire and Water District Dams. The structure impounds little or no water and for years the dam has been quite delapidated. No additional damage of consequence was caused by the flood and because the dam stores so little water and is such a low and short structure, its condition causes no concern regarding danger to persons and property downstream. Though delapidated, the dam is satisfactory.

L. State Fish Hatchery Dams

These dams are located southerly of route No. 32 and easterly of Gates St. The upper dam is the larger structure and is a masonry dam that forms a pond to provide water for use at the fish hatchery. During the flood of August, 1955, the earth at the left side of the dam was washed out. The dam itself received no major damage. The washout in the natural ground has been repaired and the spillway capacity has been slightly increased. Further consideration is being given to enlarging the spillway capacity at this dam to provide a spillway crest sufficiently long and with enough freeboard to pass a major flood. At the present time the dam is in good condition. The downstream dam is formed by the highway fill of route No. 32. This structure is in satisfactory condition.

M. Forest Lake Dam

This dam is located on the westerly end of Forest Lake just easterly of the Ware River. The dam is a stone masonry structure and impounds a body of water that covers an area of 60 acres. During the flood of August, 1955, the dam was topped but no damage to the structure resulted. The road adjacent to the dam was washed out and the railroad embankment carrying the Boston & Albany Railroad tracks was washed through. At the time of the last inspection, the dam was in reasonably good condition and thus, satisfactory.

N. Duda Dam (formerly Midura)

This dam is located in the Bondsville section of Palmer near the Belchertown line. It forms a shallow pond with a very small drainage area. The dam is a low, long, earth embankment with a shaft and culvert spillway. During the flood of August, 1955, the dam was topped by the storm water but no damage resulted. The dam is in satisfactory condition.

O. Textile Printing Co. Upper Dam

This dam is located on Swift River just upstream from the built-up portion of Bondsville. It is a masonry structure with a spillway across the entire width of the stream. No

damage was done at the dam during the flood of August, 1955. The dam is in good condition.

P. Textile Printing Co. Lower Dam

This dam is located on Swift River in Bondsville at a point approximately 3000' downstream from the Upper Dam just described. This dam is a stone masonry structure with a spillway crest the full width of the stream. During the flood of August, 1955, no damage was done at this dam. At the time of the last inspection, a small sunken area in the ground just downstream of the right abutment was noted. This sunken area seems too far below the dam to be related to the structure. However, the condition is hereby noted and will be watched at future inspections. The dam is satisfactory for the present.

Q. Self-Locking Carton Co. Upper Dam

This dam is located on the Ware River just upstream of the Thorndike section of Palmer. It is a masonry structure with a spillway crest the full width of the stream. The left abutment of the dam included a dike that extended from the easterly end of the masonry dam to about the railroad tracks of the Boston & Albany Railroad. During the flood of August, 1955, this dike was topped and washed out. No damage resulted to the masonry dam itself. During this past year, the dike has been replaced with a massive stone fill capable of ponding water with a minimum of leakage and with maximum stability under overflow conditions. The top of the dike has been constructed to a grade that will allow this stone fill to act as an emergency overflow in time of extreme run-off conditions. The dike has been built in accordance with approved plans and specifications and is a temporary structure that will eventually be replaced by an extension of the permanent masonry dam to the east. This dam is satisfactory.

R. Self-Locking Carton Co. Lower Dam

This dam is a masonry structure located on the Ware River downstream from the dam just described and at the built-up portion of Thorndike. The overflow crest of the structure extends for the full width of the stream. During the flood of August, 1955, there was a small washout around the west end of the dam. No damage occurred to the dam itself. The railroad tracks westerly of the dam were washed out by the flood water passing around the left abutment. This washout has been repaired and the dam itself is in good condition. The dike downstream of this lower dam that runs parallel to the Ware River and forms the left bank of the canal, is covered with a growth of brush that should be cut and removed from the surface of the dike.

C.D. Palmer  
Oct. 25, 1956, Cont.

S. New England Power Dam (Otis Co. Dam)

This dam is a high masonry structure located on the Chicopee River just downstream from the Three Rivers section of Palmer. The crest of the dam extends for the full width of the stream. During the flood of August, 1955, the flow over the dam was so high that the water level flooded the abutment areas and the power station itself. No damage occurred to the dam as a result of the flood. The dam is in good condition.

T. Sosur Dam

This dam is located in the westerly portion of Palmer just southerly of the Chicopee River and adjacent to Springfield St. The dam itself forms a small private recreational pond and consists of a small masonry structure for holding stop-logs at the entrance to the highway culvert. The pond has not been used to any great extent in recent years and very little water is stored. The structure as now existing is no more than a headworks to the culvert under the highway.

The number of dams inspected in Palmer, including those that have been breached for some time, is twenty-four. Of this number, one dam was damaged in the flood and completely removed from the stream by the owner following the flood. Three dams received major damage and have since been repaired and are now serviceable. Two dams received major damage and have not been repaired and no longer pond water. A number of the dams suffered minor damage but ordinary maintenance and minor repair work corrected any deficiencies or storm-caused weaknesses.

Respectfully submitted

  
George H. McDonnell  
Civil Engineer

GHM/f

GEORGE H. MC CONNELL

PHILIP W. SHERIDAN

EDWARD J. BAYON

TEL. JEFFERSON 3-3991

**TIGHE & BOND**  
**CONSULTING ENGINEERS**  
BOWERS AND PEQUOT STREETS  
**HOLYOKE, MASSACHUSETTS**

CIVIL, SANITARY AND  
ELECTRICAL ENGINEERING  
SUPERVISION OF CONSTRUCTION  
AND OPERATION  
INVESTIGATIONS, REPORTS,  
PLANS AND SPECIFICATIONS

CD Palmer

Oct. 16, 1958

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspection of dams in the Town of Palmer has now completed the inspection routine in that community and every dam has been examined one or more times during 1958. The following is a report on the condition of the various dams in the Town of Palmer.

A. V. V. McNitt Dam

This dam was found to be in satisfactory condition. Some settlement of earth was noted on the downstream side of the concrete masonry wall. This is probably a result of recent repairs to the masonry wall. This condition will be checked during 1959 inspections to determine whether or not there is additional settlement and need for any repairs to the embankment.

B. Hinkson Paper Co. Dams

1. Lower Dam This dam has been breached for years and the breach is sufficiently wide to prevent ponding of storm flows.
2. Middle Dam This dam does not pond water since the drains are open and the flow of the brook passes thru the dam. Even if the drains became plugged the small quantity of water impounded would not endanger persons and property downstream.
3. Upper Dam No water is stored behind this dam. It has been abandoned for some time and it was breached in the flood of August, 1955. The breach prevents the storage of water.

C. Palmer Fire District #1 Upper Dam

This dam is in satisfactory condition. Flashboards were found to be in place on the spillway. The general condition of the spillway was O.K.

D. Palmer Fire District #1 Lower Dam

The work of raising the earth embankment at this dam has not been completed. The embankment has been shaped and raised across its length except for immediately adjacent to the spillway chute. This remaining work should be completed prior to freezing winter weather. The side walls of the spillway chute should be properly raised and needed maintenance and repairs of the spillway chute itself should be included in the work. All brush and small tree growth should be cut from the spillway and on the dam embankment.

E. Holbrook Pool Dam

This dam is still breached as the result of the August, 1955 flood. A satisfactory waterway remains for the passage of flood flows.

F. Holbrook Pool Upper Dam

This dam is still breached as the result of the August, 1955 flood. A satisfactory waterway remains for the passage of flood flows.

G. Mongo Dam (Palmer Ice Co.)

Conditions at this dam are still the same as previously reported. The dam itself is in a safe condition. However, the inlet to the overflow tube contains a grill that could be blocked by debris and in time of flood flows the water level in the pond might rise and overflow onto Shearer Street. The flood waters would then pass under the bridge carrying the access road to the Toll Highway and might do damage to the road pavement and shoulder areas. Recommendations were previously made to have a paved channel built adjacent to the roadway for the purpose of conveying overflowing water under the Highway bridge. No construction of this type has been done by the Toll Authority.

It is recommended that a communication be sent to the Mass. Toll Authority again pointing out this condition and requesting information about any action planned by that Authority.

H. Thorndike Fire and Water District Dams

1. Upper Dam This dam was found to be in very good condition.

2. Lower Dam This dam was found to be in very good condition.

I. Lake Thompson Dam

This dam and its spillway were found to be in excellent condition.



J. Lions Club Dam (Formerly Palmer Town Farm Dam)

The old Town Farm Dam has been done away with and a new concrete masonry dam constructed by the Lions Club to form a pool used for swimming purposes. The dam has been poorly built but it is not dangerous to persons and property downstream. The height of the dam is only 7 ft. and the quantity of water stored is but a small fraction of 1,000,000 gallons. The drainage area is less than a square mile and consequently, the dam does not come under County jurisdiction. Since there is a possibility that the dam might be raised to a height of 10 ft., the structure will be inspected annually and a record kept regarding its height and general size.

K. State Fish Hatchery Dams

1. Upper Dam This dam was found to be in excellent condition.
2. Lower Dam This dam was found to be in excellent condition. The new construction has been completed and the crest length of the spillway is now more than double the original length. The new spillway culvert under the highway provides a much greater capacity for handling flood flows.

L. Forest Lake Dam

This dam is somewhat dilapidated but appears to be safe and satisfactory. Trees growing from the abutments of this dam should be cut down and the root systems killed.

M. Duda Dam (Formerly Midura Dam)

Conditions at this dam were found to be the same as in previous years. In general, the dam is satisfactory.

N. Textile Printing Co. Upper Dam

This dam was found to be in good condition. Flashboards were in place on the dam.

O. Textile Printing Co. Lower Dam

This dam was found to be in good condition. Leakage under the cap stones at the right abutment has occurred for a number of years. This condition still exists and presents no problem regarding the safety of the dam. No flashboards were in place on this dam.

P. Self-Locking Carton Co. Upper Dam

This dam was found to be in excellent condition. Repairs to the overflow structure have been recently completed and all eroded concrete has been well covered and protected with a new layer of concrete applied with air guns. The canal wall downstream of the dam and the canal spillway were found to be in good condition. A small amount of leakage is occurring under the right abutment of the main dam. This leakage emerges at the toe. This is not serious.

The left stone abutment of the main dam where settlement and cracking was previously noted is still in the same condition but not dangerous.

The rock dike to the left of this dam constructed to close the breach caused by the flood of August, 1955 is in good condition.

Q. Self-Locking Carton Co. Lower Dam

This dam was found to be in satisfactory condition. All tree and brush growth on the canal dike has been cut down as recommended. An excellent job of removing this growth has been done. The dike was found to be in satisfactory condition.


R. New England Power Co. Dam (Otis Co. Dam)

This dam was found to be in satisfactory condition. The concrete is beginning to erode and in the near future, as erosion progresses, it will be necessary to recommend repairs to the dam.

S. Sosur Dam

This structure is nothing more than the head works of the highway culvert under Springfield Street. No stop logs are in place in the structure and free flow is allowed into the culvert. Conditions were found to be satisfactory.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer  
Oct. 16, 1959

The Hon. the Board of County Commissioners  
Hampden County Court House  
Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspections of dams, situated in the Town of Palmer, have now completed the inspection routine in that community and every dam has been examined one or more times during 1959. The following is a report on the general conditions of the various dams situated in Palmer.

A. V. V. McNitt Dam

The earth embankment immediately downstream of the masonry wall at a point adjacent to both sides of the spillway has been washed out in part. It would appear as if the capacity of the spillway has been exceeded in the recent past. The excess overflowing water caused the washout of the earth. The spillway capacity should probably be increased by raising the side walls of the spillway and the earth embankment thus creating a deeper spillway section at the overflow and providing more overflow capacity. The condition of the dam and spillway does not endanger persons and property downstream. Just immediately below the dam there is a very large earth embankment containing a culvert. The size of this culvert is small and, any loss of the dam would simply result in the earth embankment temporarily acting as a dam until the surplus water passes thru the culvert to the drainage area below.

B. Hinkson Paper Co. Dams

1. Lower Dam This structure is still widely breached and no pond is formed. The breach is wide enough to allow for the passage of flood flows without ponding water.
2. Middle Dam No water is stored at this dam. The drain is open and the small flow of the brook passes thru the drainage system. Only a small quantity of water would

be stored should the flow of the brook exceed the capacity of the drain. No danger exists from the storage of water behind this small structure.

3. Upper dam No water is stored behind this dam. This structure was breached in the flood of August 1955. No repair work has been done. The breach remains wide open.

C. Palmer Fire District #1 Upper Dam

The embankment at this dam is in good condition. The spillway is satisfactory. However, cracks in the general area immediately downstream of the flashboards should be repaired. Flashboards were in place on the crest of the spillway at the time of the last inspection.

D. Palmer Fire District #1 Lower Dam

The spillway chute has been improved. However, the right-hand wall below the flashboard location should be constructed to a higher grade, to prevent extreme flows from jumping the wall and washing out the earth behind and under the chute. Such a washout, if it became large enough, might endanger the embankment of the dam. The walls of the spillway and the earth embankment in the vicinity of the crest of the spillway should be raised and all work completed on the project as soon as possible.

E. Holbrook Pool Dam

This dam is still breached as the result of the August 1955 flood. A satisfactory waterway remains for the passage of flood flows.

F. Holbrook Pool Upper Dam

This dam is still breached as the result of the flood of August 1955. A satisfactory waterway remains for the passage of flood flows.

G. Mongo Dam (Palmer Ice Co.)

The dam and spillway are in good condition. The spillway inlet at the tube under the highway fill was found to be clean and operating well. In time of heavy storm, that might exceed the capacity of the inlet, particularly if the inlet becomes plugged with debris, could overflow onto Shearer Street and wash the northerly gutter of this street. This condition has been pointed out to the Toll

Highway Authority in the past but, they are of the opinion that no further work should be done in connection with this dam. Alterations to the dam were a result of Toll Highway construction. Apparently the Toll Authority are exempt from complying with County requirements and consequently it would appear as if the recommended work cannot be required of the Toll Authority.

H. Thorndike Fire and Water District Dams

1. Upper Dam The embankment and spillway are both in excellent condition. A new spillway box has been well built and is operating satisfactorily.
2. Lower Dam The dam and spillway are both in good condition.

I. Lake Thompson Dam The dam and spillway were found to be in excellent condition.

J. Lions Club Dam (Formerly Palmer Town Farm Dam)

As reported previously, this is a very small dam that does not come under County jurisdiction. It is inspected annually to be certain that it is not raised and enlarged so that it will fall under County jurisdiction. During the past year some improvements were made by placing of riprap at the side slopes of the pond adjacent to the dam.

K. State Fish Hatchery Dams

1. Upper Dam

This dam was found to be in good condition. A small crack has occurred at the concrete left masonry training wall built following the 1955 flood. This crack is not a serious condition and it will be observed from time to time to see if there is any further movement of this wall. The wall movement is probably due to a small amount of settlement that has occurred at foundation level or directly behind the wall. Cracks of this type are not unusual on concrete wall construction. The wall itself is not a main part of the dam but simply a training wall to direct the water after it overflows the dam, back into the channel of the stream.

2. Lower Dam

This dam was found to be in excellent condition. Recently drainage has been built on the road shoulders that forms the embankment of the structure. This drainage further increases the safety factor of the structure. The concrete of the spillway and the spillway box under the road are in excellent condition.

L. Forest Lake Dam

This dam is dilapidated but is safe except for trees growing in both abutment areas. Loss of these trees by wind storm might cause damage to the abutment areas and movement of the abutment stones to a point where the pond could drain around the dam. It would seem advisable for the Owner to cut down these trees and to kill the root systems.

M. Duda Dam (Formerly Midura Dam)

This dam was found to be in satisfactory condition. In general the structure remains the same year after year.

N. Textile Printing Co. Upper Dam

This dam was found to be in satisfactory condition. Flashboards were in place on the dam but were noted to be bent over and ready to fail during the next high water. Some of the boards are already washed out of the spillway, particularly at the left end.

O. Textile Printing Co. Lower Dam

This dam was found to be in satisfactory condition. No flashboards were present on the dam. Leakage under cap stones still exists but does not change from year to year and the condition is satisfactory.

P. Self-Locking Carton Co. Upper Dam

The dam itself is in excellent condition. A small leak exists at the base of the right abutment near the dam. This leakage is small and the water coming from the abutment is clear. Leakage is at the same rate as noted in the past. The left stone abutment remains cracked and settled at a point downstream of the dam. This condition is not dangerous and complete loss of the abutment end will

not endanger the dam. Seepage thru the stone masonry at the left abutment still occurs to a minor degree. The rock dike to the left of this dam, constructed to close the breach caused by the flood of Aug. 1955, is in good condition.

Q. Self-Locking Carton Co. Lower Dam

This dam was found to be in satisfactory condition. The dike also is in satisfactory condition but may need surface wash maintenance and general brushing work in 1960. Need for this work will be reported following future inspections.

R. New England Power Co. Dam (Otis Co. Dam)

The dam was found to be in satisfactory condition. Flashboards are in place on the crest. The concrete of the dam is showing more erosion and in a few years repairs may be needed to this structure.

S. Sasur Dam

The spillway stop logs are in place and the pond was full at the time of the last inspection, on Oct. 7, 1959. The entrance to the spillway is fairly well blocked with a large log that has fallen into the masonry inlet well. This log reduces the capacity of the spillway tube and could result in the topping of the road if a heavy runoff should occur that would exceed the capacity of the tube as now partly blocked by the log. The Owner of the dam should be notified to remove the log immediately.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer  
Sept. 21, 1960

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections conducted recently throughout the Town of Palmer have now completed the inspection routine in that community and every dam has been examined at least once during the year 1960. The following is a report on the general condition of each dam situated within Palmer.

A. V. V. McNitt Dam

Conditions reported previously were noted to still exist at the site of this structure. On the downstream side of the masonry wall, to the left and to the right of the spillway opening, the earth embankment has been washed out by high rates of flow during storm run-off conditions. At the time of the inspection at this dam, on Sept. 15, 1960, there was evidence of recent overflow on the earth embankment. The overflow probably occurred during the hurricane rain on Monday, Sept. 12th. To prevent washing of the earth embankment downstream of the masonry wall, the Owner should increase spillway capacity. The least expensive method of doing this would probably be by raising the masonry wall and the earth embankment of the dam, to provide for a deeper spillway notch that will thus pass higher rates of runoff.

As reported previously, conditions at this dam and spillway are not dangerous and persons and property downstream will not suffer because of any washout at the dam. Just immediately below the dam there exists a very large earth embankment thru which is located a small culvert. The size of the culvert controls the quantity of water that can pass thru the embankment to the highway below and thus, any loss of the dam would simply result in this large earth embankment temporarily acting as a dam, until such time as the surplus water passed thru the culvert, at a controlled rate, to the drainage area below.

B. Hinkson Paper Co. Dams

1. Lower Dam This structure is still breached and the opening around and thru the old masonry of the dam is wide enough to pass storm flows. The structure has been breached for many years.
2. Middle Dam No water is stored at this dam. The drain is open and the small flow from the local brook passes thru the drainage system. This structure as now existing is in reality not a dam but simply a drainage system serving the upper portion of the local hill. No danger exists from any storage of water behind the small dam that could occur in time of extreme runoff conditions.
3. Upper Dam This structure has been breached and abandoned for a number of years and no water is stored. No repair work has been done and it would appear that this structure is abandoned.

C. Palmer Fire District #1 Upper Dam

The embankment of this dam is in good condition. The spillway chute is in need of repairs near the lower end. Cracks on the floor of the chute, particularly near the stop logs, should be repaired.

D. Palmer Fire District #1 Lower Dam

The spillway walls should be raised to the height of the new embankment fill at the top of the dam, in the location of the old spillway bridge. The side walls of the spillway chute, particularly at the right wall, at the spillway bend, should be raised to properly contain peak rates of flow and prevent water from jumping the spillway and causing a washout of adjacent soil. When last inspected, the pond was drawn to a low level and the reservoir was not in active use.

E. Holbrook Pool Dam

This structure is still breached as the result of the flood of 1955. The breach is wide enough to pass high rates of brook flow. The Owner had planned to reconstruct this dam during the Spring and early Summer of 1960. However, as of the present no indication of any actual work being done has been noted.

F. Holbrook Pool Upper Dam

This structure is still breached as the result of the flood of 1955. The breach is wide enough to pass high rates of brook flow. The Owner had planned to reconstruct this dam during the Spring and early Summer of 1960. However, as of the present no indication of any actual work being done has been noted.

G. Mongo Dam

This dam was found to be in satisfactory condition. The embankment was found to be in good shape and the spillway rack was clear of debris.

H. Thorndike Fire and Water District Dams

1. Upper Dam The dam embankment was found to be in satisfactory condition. The wooden spillway box was in excellent condition.
2. Lower Dam The embankment and spillway at this small dam were found to be in satisfactory condition.

I. Lake Thompson Dam

The embankment, stone masonry and the concrete spillway at this dam were all found to be in excellent condition. One extra stop log was found to be in place in the spillway. This stop log was removed. The dam should be operated with the single metal flashboard that has been used for years in the past. If future inspections indicate the presence of additional flashboards, it will then be recommended that a notice be sent to the Lake Thompson Association in connection with requirements for flashboards on the dam.

J. Lions Club Dam

Work has been done to improve the dam somewhat. The dam, as existing still does not come under County jurisdiction. The pond is insignificant in size and the height of the dam is only about 5 ft. Drainage area is very small. The structure is inspected annually to be certain that the dam is not raised to a point where it would come under County jurisdiction.

A new wading pool has been built downstream of the dam. This wading pool is not in the stream valley itself but off to the side and arranged in such a manner that it is fed from a pipe leading from the pond in the pool upstream of the dam. This pool is also outside of County jurisdiction.

K. State Fish Hatchery Dams

1. Upper Dam This dam was found to be in good condition. The crack in the left training wall at the left abutment and reported last year, is definitely a result of settlement of the wall. The settlement apparently is about  $\frac{1}{8}$  of an inch. This is not serious and there appears to be no cause for further settlement of any magnitude. The

crack will be watched yearly for any increase in size. The paved concrete chute built in conjunction with the training wall is in good condition and shows no evidence of cracking but does show a very minor indication of settlement. Conditions on the whole are good at this dam.

2. Lower Dam The spillway and embankment of this dam are both in excellent condition.

L. Forest Lake Dam

Conditions now existing are about the same as reported in previous years. It was noted at the time of the last inspection that the flashboards are becoming quite dilapidated and in part are indicating evidence of failure. This condition does not endanger the dam and, as a matter of fact, if they do fail further, the spillway capacity will be increased and the dam made safer. However, the pond level will drop slightly and this could result in property Owners requesting the dam Owner to repair and replace rotting and dilapidated flashboards. The height of the flashboards as measured above the spillway masonry opening on Sept. 15, 1960 was 15-inches.

Trees at both abutments are still present. Their loss by being uprooted in a heavy wind storm could cause failure of the abutments and the earth in the abutment areas with the possible resulting loss of the pond. These trees should be cut down and the root structures killed. This recommendation applies particularly to the twin maple trees at the left abutment adjacent to the roadway. The cost of removing the trees in question is small compared to what the cost of repairing the dam might be, should the trees be uprooted. It would seem advisable to inform the Owner that the trees should be removed.

M. Duda Dam

The embankment at this dam was found to be in satisfactory condition. The pond was empty at the time of the last inspection. The vertical overflow pipe that controls the height of the pond is bent over and water enters the joint of the pipe at the base of the vertical riser. This keeps the pond drained. The pond has been purposely drained in the manner described so that the Owner can clean the bottom of the pond of all muck and deposits. Vegetation growth on the pond bottom indicates that the pond level has been drawn down for a number of weeks. The undersigned discussed the dam and pond with Mrs. Duda and she expects that the bottom of the pond will be cleaned this Fall and the pond reactivated for use next year.

N. Textile Printing Co. Upper Dam

This dam was found to be in satisfactory condition. The abutments and general abutment areas are satisfactory. Flashboards were found to be on the dam at the time of the last inspection following the hurricane rains of Sept. 12, 1960. However, the high rate of runoff in the stream apparently washed out part of the flashboards. Some of the flashboard pins were bent over and boards on the dam were leaning downstream. On the whole, the dam is in satisfactory shape.

O. Textile Printing Co. Lower Dam

This dam was found to be in excellent condition. Leakage that had occurred under the cap stones at the right abutment, adjacent to the spillway is still about the same as reported in previous years. This is not a dangerous condition. At the left abutment near the end of the spillway, sapplings growing from the face of the masonry should be killed and removed. This sort of growth can dislodge block masonry and eventually lead to the need for costly maintenance. The growth of any tree and its related root structure, located near masonry walls, should be discouraged to protect masonry. At the time of the last inspection there were no flashboards situated on the dam.

P. Self-Locking Carton Co. Upper Dam

The canal dike and its related spillway, just downstream of the dam were found to be in good condition. Flow in the river was high as the result of heavy rains prior to the last inspection. The dam itself was found to be in good condition and the abutments of the structure were about the same as reported a year ago. The broken downstream end of the left abutment wall remains unchanged and the condition is not dangerous. The small leak at the right abutment noted previously was not visible, due to the high flow in the river. Seepage thru the left abutment is about the same as that noted in recent years. The stone filled dike to the left of the left abutment is in satisfactory condition. Seepage occurs thru this dike but this is to be expected since the dike has been constructed from heavy boulders with gravel fill and there was no intention of having this dike water tight.

Q. Self-Locking Carton Co. Lower Dam

The dam was found to be in good condition. The dike downstream of the dam has been kept clear of brush and vegetation. At about the central portion of the dike, there was evidence

that the canal had washed over the dike recently. The surface washouts should be repaired. Apparently the canal has been operated in such a manner that the water level therein rises above the level of the dike and thus influent to the canal must exceed the capacity of the canal spillway. This is not a good condition and the canal should be so operated that the water level therein will not exceed the top of the dike. If operation of the head gates and the gates at the using mill presents a problem, then the overflow capacity of the spillway should be increased. This could be done economically by shaping the dike to a pre-planned low area and then, after grading this low area, it should be paved to allow for the overflow of excess canal water to the stream bed at the left. Paving could be with either cement or asphalt concrete and the paving should be protected with proper vertical or sloping side walls, with a footing cutoff wall on the canal end and a proper paved chute on the river side, at the discharge end.

R. New England Power Co. Dam

This dam was found to be in satisfactory condition. When last inspected the flashboards were found to be in place on the spillway crest. The flashboards were in good state of repair. The spalling of the concrete is no worse than noticed previously and thus, repair work is not as yet a necessity. The upper trash sluice gate was found to be open a bit and one of the lower drawdown gates was open about 1 ft., more or less. A fairly good discharge was occurring at this latter gate opening. The pond level was just below the top of the flashboards.

S. Sasur Dam

The pond is down from what apparently was normal water level during the Summer months. One stop log has been removed from the spillway inlet structure. This spillway inlet structure also serves as the inlet to the culvert under the highway. Surface water running from the shoulder of the roadway just above the culvert and pond spillway structure is washing out the edge of the pavement and the road shoulder itself. At the pond side of the roadway fill which forms the embankment of the dam, a sunken void was noted at the toe of the fill to the left of the culvert and spillway inlet. This sunken void may be the result of water entering the ground and running under the embankment to some opening in a drain pipe or in the culvert itself. Again, it could be the result of other conditions. It would seem advisable to have this void investigated and the cause for its formation corrected.

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7.

This might be Highway Department work, since the necessary maintenance is in connection with the Highway embankment.

Respectfully submitted

A handwritten signature in dark ink, appearing to read "G. H. McDonnell", written over a horizontal line.

George H. McDonnell  
County Hydraulic Engineer

GHM/cmb



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

July 31, 1961

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections conducted recently within the Town of Palmer have now resulted in the completion of the inspection routine in that community and every dam situated within Palmer has been examined at least once during the year 1961. The following is a report on the general condition of each dam in the Town of Palmer.

A. V. V. McNitt Dam

At the time of the last inspection on July 21, 1961, there was no evidence of water washing over the embankment in recent weeks. The earth embankment of the dam has been raised slightly and a good growth of sod promoted. The work as completed will no doubt greatly reduce the number of times during the year when the dam will be topped by flash flows of storm water. As pointed out in previous reports, conditions at this dam are not dangerous since immediately downstream thereof exists a large earth embankment much higher than the dam and thru this embankment is located a very small culvert. The size of the culvert would control the quantity of water released to the area of Boston Road, Route 20. Thus, no flooding or damage to property downstream of the dam could occur other than at the dam embankment itself.

As existing at the time of the last inspection, conditions at this dam were satisfactory.

B. Hinkson Paper Co. Dams

1. Lower Dam This structure is still breached, as has been the case for many years, and the opening in the breach is wide enough to pass storm flows.

2. Middle Dam No water is stored at this dam. The structure apparently has not been in use for a number of years. The drain pipe is open and any flow into the pond drains away. The pond and its facilities now is nothing more than a drainage system.

#### Upper Dam

3. This pond is empty and the bed of the pond is rapidly being overgrown with weeds, grass and miscellaneous vegetation. The drain thru the dam is open and the flow of the brook passes thru the embankment without forming any pond. Plugging of the drain or a flow of water in excess of the capacity of the drain could cause the storage of water in the old pond bed. However, little water would be stored and any sudden release of the water would do little or no damage downstream. It would seem advisable to notify the Owner that if the dams are not to be used again and if water is not to be stored for any particular purpose, the embankments should probably be breached to prevent the formation of any pond due to plugging of the drains or excessive flow of storm water.

### C. Palmer Fire District #1 Upper Dam

The embankment at this dam was found to be in good condition. The spillway is in fairly good condition and has been repaired. Permanent flashboards are still in place at the dam and thus reduce spillway capacity. However, the dam withstood the flood of August, 1955 satisfactorily with the same flashboard setting. Consequently, until such time as the drainage area changes so that runoff occurs at a higher rate, conditions at the dam would appear to be satisfactory.

### D. Palmer Fire District #1 Lower Dam

The embankment at this dam was found to be in relatively good condition. The spillway masonry sidewalls at the old bridge location have not been raised as requested in previous communications to the Water Department. However, while making the inspection at the dam, the undersigned met the Superintendent of the Water Department and he was agreeable to lowering the stop logs in the spillway to provide more free vertical head in the critical spillway section. This will have the same effect as raising the concrete walls and would be acceptable from an hydraulic point of view.

### E. Holbrook Pool Dam

This structure is still breached as the result of the flood of August, 1955. The breach is quite wide and can pass high rates of flood flow. The Owner had planned to reconstruct the dam during the Spring and early Summer of last year. However, on checking with

the Owner by phone, he is not sure as to when he will begin any reconstruction. He has agreed to file plans for approval before any work proceeds.

F. Holbrook Pool Upper Dam

This structure also is still breached as the result of the flood of August, 1955. The breach is quite wide and can pass high rates of brook flow. Though the Owner had planned to reconstruct this dam more than a year ago, he indicated to the undersigned in a recent telephone conversation, that it may be some time before he begins any work and, before work does begin, he will file plans for approval by your Board.

G. Mongo Dam

The embankment was found to be in satisfactory condition. The spillway was clean and clear of any debris.

H. Thorndike Fire and Water District Dams

1. Upper Dam The embankment and the spillway wooden box structure are both in very good condition.
2. Lower Dam The earth embankment and the spillway chute were found to be in satisfactory condition.

I. Lake Thompson Dam

Both the spillway and the embankment of this structure were found to be in very good condition. Only the one metal flashboard stop-log was noted in the spillway this year.

J. Lions Club Dam

Conditions at this dam are still the same as reported last year. As now existing, the diversion dam does not come under County jurisdiction since the pond formed is insignificant in size, the height of the dam is only about 5 ft. and the drainage area is considerably less than one square mile. The pool used for swimming purposes is fed from the diversion dam by a pipeline and is not in the main bed of the brook.

K. State Fish Hatchery Dams

1. Upper Dam The masonry at this dam was found to be in good condition. The crack at the left training wall is no bigger than

noted last year. The small amount of settlement that occurred some time ago seems to have been stabilized and no further motion is noted. In general, the dam is in good shape.

2. Lower Dam Both the spillway and the embankment of this dam were found to be in excellent condition.

L. Forest Lake Dam

Conditions existing at the time of the last inspection on July 21, 1961 were about the same as reported in previous years. Flashboards on the crest of the dam are quite dilapidated and are about 15-inches in height. One section of the flashboards apparently failed recently for there are a few new boards set in place. Trees at both abutments are still present in spite of past recommendations that they be cut down to help preserve the abutment masonry. Loss of the trees by being uprooted in a heavy wind storm could cause failure of the abutments and thus loss of the level of Forest Lake. The cost of removing the trees would be small compared to the cost of repairing the dam, should an abutment be breached due to a tree being uprooted. By allowing these trees to continue to grow, the root structure could in itself, cause more damage to the masonry of the abutment. It is recommended that the Owner be advised to remove the trees within a reasonable time.

M. Duda Dam

This dam is in the same general condition as noted a year ago. The pond is empty and the drawdown pipe is open. The embankment has not changed in any way in recent years. It would appear from the growth of vegetation on the old pond bottom that the pond has been empty continuously. Apparently the plan of the Owner to clean the bottom and improve the pond has not been carried out. The dam as existing does not endanger persons and property downstream.

N. Textile Printing Co. Upper Dam

Conditions at this dam were found to be the same as those noted a year ago. The masonry is in good condition and both abutments are satisfactory. Flashboards on the crest of the dam are in very poor shape and some of the boards have been washed out completely. On the whole, the dam is in good condition.

O. Textile Printing Co. Lower Dam

This dam is in the same general condition as reported a year ago. The masonry of the structure is in excellent condition. Leakage

that has occurred for a number of years under the cap stones at the right abutment continues to occur but this does not decrease the stability or safety of the structure. At the left abutment near the end of the spillway, young trees are noted growing from the face of the masonry. This matter was reported to the Owner previously but no action has been taken to kill this growth. It will be noted each year and if damage to the masonry joints begins to occur, a second recommendation for removal of the growth will be forwarded. No flashboards were on the crest of this dam at the time of the last inspection.

P. Self-Locking Carton Co. Upper Dam

The canal dike and the canal spillway were found to be in good condition. Brush and small tree growth at both of the abutment areas of the canal spillway and situated on the embankment between the canal spillway and the main dam right abutment should be cut down and re-growth discouraged.

The leak at the base of the right abutment at the main dam seems to be about the same as noted in previous years. No settlement is noted in the fill behind the abutment and there is no indication that earth is being carried by the leak. This flow will be observed from time to time and if it is thought necessary to investigate and repair the leak, a recommendation will then be forwarded. The masonry dam was found to be in satisfactory condition. At the left abutment, the dike built between the dam and the railroad location should be cleared of all large brush and small tree growth. The general condition of the abutment has not changed and leakage is about the same as noted in recent years.

Q. Self-Locking Carton Lower Dam

The joints of some of the stone blocks on the main spillway across the river are in need of repair. Some joints seem to have lost a major portion of the mortar. Erosion on the spillway crest seems to be growing worse.

The dike downstream of this dam has been repaired by the placing of gravel in areas where canal water washed over the dike in 1960. A considerable amount of brush and small tree growth is occurring on the faces of the dike embankment. This growth should be removed and regrowth discouraged. The growth makes inspection of the dike difficult. Holes, slides, or voids forming in the dike might go unnoticed under the growing vegetation.

R. New England Power Co. Dam

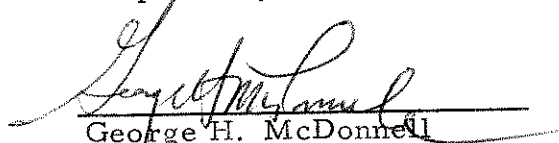
This dam was about in the same condition as noted in previous years. Flashboards were in place on the crest of the dam at the time of the last inspection. Masonry of the dam will be in need of repairs, particularly in the location of the top horizontal joint, within a few years. The face of the dam in general, is showing signs of wear and water erosion. Because of the uncertain future of this dam, based upon the proposed Flood Control program for the Three Rivers area, any definite recommendation for repairs to the dam should be delayed for a year or two, until the flood plans and the schedule of flood control construction are all known.

S. Sasur Dam

This structure is in about the same condition as noted in previous years. Two stop logs were in place in the spillway masonry notch. Water level in the pond was about normal for the Summer-time conditions. Logs, sticks and some debris was noted in the culvert entrance at the masonry spillway unit. All of this material should be removed and the culvert kept clean. The sunken area reported last year at the culvert wingwall on the pond side of the fill to the left of the culvert should be investigated and its cause determined. It is possible that earth is being washed into an opening in the culvert and repairs to the culvert might be desirable before any failure of the unit occurs.

Since the embankment forming the dam is the highway embankment carrying the road between Three Rivers and Ludlow thru Wilbraham, the work of investigating and correcting the condition might be the responsibility of the Town Highway Department.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer

July 3, 1962

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

The undersigned has recently conducted inspections within the Town of Palmer and all dams in that community have now been checked at least once during the year 1962. The following is a report on the general condition of each dam in the Town of Palmer.

A. V. V. McNitt Dam

This dam was found to be in good condition. The masonry of the spillway and the related wall were found to be well maintained. The earth embankments at both abutment areas were raised a year ago and this new earth is now protected with a plank wall. The raised embankments provide for greater head on the spillway and thus greater overflow capacity. In recent years, at each inspection, it was noted that water had flowed over the embankment portion of the dam and certain minor damage had resulted. However, at the inspection this year, there was no evidence of any overflow of water other than that taking place thru the masonry spillway.

B. Hinkson Paper Co. Dams

1. Lower Dam This structure is still breached and the breach is wide and deep enough to pass storm flows. The dam has been breached for many years.
2. Middle Dam No water was found stored at this dam. The structure has not been used for a number of years. The drain pipe is open and any flow that enters the pond drains away.



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-2-

3. Upper Dam This dam was found to be in the same general condition as reported previously. The dam has not been active for a number of years and no water is ponded. The pond area is becoming heavily overgrown with brush.

A communication sent to the owner regarding the dams resulted in a statement that the dams and ponds were not abandoned but simply kept empty to protect children playing in the area.

C. Palmer Fire District #1 Upper Dam

The embankment at this dam was found to be in satisfactory condition. The spillway chute was found to be in fair condition. Some cracking and vegetation growth in the cracks was noted but the condition is not too bad. The usual flashboard stoplogs were noted in place in the spillway crest.

D. Palmer Fire District #1 Lower Dam

The embankment was OK. Stoplogs have been removed as agreed at the spillway except for the fact that one board, the bottom board, remains in place. This is not a serious condition. More head is now available at the spillway for passing peak flows and thus the spillway capacity has been increased.

The spillway chute wall at the right of the bend has been raised to keep high rates of flow from jumping the limits of the spillway and washing out the earth of the dam. At the time of the inspection, it was noted that water was just at the spillway crest.

E. Holbrook Pool Dam

This structure is still breached as the result of the flood of August, 1955 and no work has been done in connection with the repair of the dam.

F. Holbrook Pool Upper Dam

This structure also is still breached as the result of the flood of August, 1955. The breach is wide and deep. Flood flows can pass without ponding water.

G. Mongo Dam

The embankment at this dam was found to be satisfactory. The spillway inlet and tube were clean and clear.

H. Thorndike Fire and Water District Dams

1. Upper Dam The embankment and the spillway were found to be satisfactory.
2. Lower Dam This structure was found to be in fair condition. Brush growth is taking place and if allowed to continue for another year, will be thick enough to require comment and recommendation for its removal, in order that a proper inspection of the dam can be made.

The general condition at the two dams indicates that maintenance in the recent past has not been as good as in years previous. Weed growth throughout the shore areas is becoming thick, the protective fence around the reservoirs and dams is broken and open at a number of places and underwater growth on the bottom of the lower reservoir is becoming quite thick. Water quality looks poor from a physical viewpoint. All of these things do not affect the safety of the dams. However, they do indicate that the owner is showing less interest in the general maintenance of the facilities and this interest may eventually result in the dams becoming less satisfactory from a structural and hydraulic viewpoint.

I. Lake Thompson Dam

The dam embankment, the downstream stone wall and the spillway chute were all found to be in excellent condition. The only flashboard in the spillway was the usual metal flashboard normally used at this dam.

J. Lions Club Dam

Conditions at the dam are about the same as previously reported. The dam itself was found to be in fair shape. It was noted that brook flow was very low and that little or no water was in storage behind the dam. The dam simply diverts water to an artificial pool used for swimming purposes.

K. State Fish Hatchery Dams

1. Upper Dam The masonry and the earth embankment were found to be in satisfactory condition. It was noted that water was flowing over the spillway and that the spillway crest has been raised about 3" by laying pipes horizontally on the crest to act as low

flashboards. The crack at the left abutment and training wall was about the same as noted in previous years. Apparently, there is no further motion taking place at this location.

2. Lower Dam The embankment was found to be satisfactory. The spillway masonry was in good condition and the structure was found to be well maintained. Spillway stoplogs were found to be satisfactory and there was no sign of rotting or sag.

L. Forest Lake Dam

This dam was found in the same general condition as reported a year ago. Flashboards about 15" in height are on the spillway. The boards are in poor condition. Trees at the abutment areas still exist and, should they become uprooted by a storm, could cause damage to the abutments and a partial loss of the water in storage. If these trees are allowed to remain, their roots will do more and more damage to the masonry of the structure with each passing year.

It was noted that water leaks thru the stone work of the right abutment.

The cost of removing the trees at the abutment areas would be quite small as compared to the cost of repairing the dam, should abutment areas be breached due to a tree being uprooted. It is recommended that the owner be advised again to remove the trees.

M. Duda Dam

The drain gate and drainage pipe were found to be wide open and free of any debris. The pond was empty and the flow of the stream passed directly thru the dam in the drainage system. The owner has placed an asbestos-cement pipe in the notch across the earth embankment dug and washed this past Spring when water became high as the result of the drain becoming plugged.

The owner has agreed that the pond will be kept empty for a number of years and that before the dam is again activated, he will contact the undersigned for an inspection and approval of any action he then plans to take.

N. Textile Printing Co. Upper Dam

The stone masonry was found to be in very good condition. The

central one-third of the flashboards are gone from the crest of the spillway and much of the remaining two portions of the flashboards lean downstream. Both abutment areas were found to be in good condition. Some water seeps thru the capstones of the left abutment but this is of no importance. The earth embankment at the right abutment was found to be O. K. Water was passing over the crest of the spillway.

O. Textile Printing Co. Lower Dam

At the time of the inspection, water was flowing over the spillway of the dam. The stone masonry work was found to be in excellent condition. Water still flows under the capstones at the right abutment as has been noted for many years in the past. No flashboards were found on the spillway. The earth at the right abutment was O.K. and the old sink hole about 30 ft. downstream from the dam has not changed any.

The left abutment area was found to be satisfactory. Some vegetation is growing from the stone work of this left abutment but as yet it is not large enough to require removal.

P. Self-Locking Carton Co. Upper Dam

The inspection of this dam was made in the presence of the maintenance employee. The canal wall and spillway were found to be in good condition. The leak at the right abutment is the same as noted in previous years. Water flowing from the bottom of the abutment is clear and there is absolutely no sign of settlement of the earth behind the abutment wall. The dam itself is in good condition.

At the left abutment, conditions were noted the same as in the past. The wall is dilapidated downstream of the dam and leaks a bit but the condition is no worse than noted at any time in the last six years.

The rock filled dike to the left of the left abutment was found to be in satisfactory condition.

Q. Self-Locking Carton Co., Lower Dam

The joints at the stone masonry of this dam were found to be in good condition. Repairs have been made since the time of the last inspection. The crest has been patched in a few areas and though the concrete at the crest is eroded, it is not in poor condition.

The canal dike has been cleared and cleaned of all brush and is in

satisfactory condition. The stone paving of the river side of the dike was found to be good. The top of the dike is at an even and reasonable grade. The spillway in the canal was found to be functioning and in good condition.

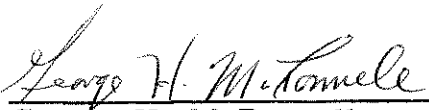
R. New England Power Co. Dam

The dam was found to be in the same general condition as a year ago. The usual flashboards were in place. These boards had been put on the day before the inspection. The surface of the masonry is quite spalled and repairs might be needed except for the fact that this dam may be abandoned as a part of the flood control program for the Three Rivers section of Palmer. The inspection was made in the presence of the power plant operator.

S. Sasur Dam

The pond was found to be at normal level and two flashboards were in place in the spillway structure. The spillway box and entrance to the highway culvert were very clean and well maintained. Conditions were better than noted at any time in recent years. The sunken area back of the wingwall adjacent to the road embankment was no different than noted previously. Apparently, any motion that has taken place has stabilized.

Respectfully submitted

  
\_\_\_\_\_  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer  
Oct. 21, 1963

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

All dams situated within the Town of Palmer have now been inspected at least once during the year 1963. The following is a report on the general condition noted at each dam within the Town of Palmer.

A. V. V. McNitt Dam

The earth embankment of the structure is somewhat rough in shape but is covered with a fairly good turf. There is a washout in the embankment at the right of the spillway. This washout is about 8 ft., more or less, in length and 4 ft. deep. The bottom of the washout is rock filled. The concrete masonry wall along the upstream section of the embankment that extends from the spillway prevents complete loss of the pond. The spillway masonry itself is in satisfactory condition.

Water is leaking under or thru the dam and emerges into the washout at a point where the embankment terminates. No earth was being washed with the leaking water at the time of inspection on October 9. Leakage is probably occurring under the concrete wall just adjacent to the void washed in the embankment.

Any enlargement of the void in the embankment will result in the exposure of an additional amount of the upstream masonry wall and could cause failure of this wall.

A complete breach of the dam and release of ponded water would not endanger persons and property downstream, since a large embankment higher than the dam is located immediately below the dam and a culvert of limited size passes thru this embankment. Water would be ponded by the old embankment and released by the small culvert.

The Owner should be advised that his dam is in danger of failing unless corrective action is taken to properly plug the leak and to replace the earth embankment.

From time to time in the past it has been noted by the undersigned that there is evidence that water overflows the entire embankment and thus the spillway is not of sufficient capacity to pass storm flows. The spillway capacity should be increased to adequately handle storm runoff, if the dam is to be protected from failure or future washouts.

B. Hinkson Paper Co. Dams

1. Lower Dam This structure, breached many years ago, is still breached and the opening is wide and deep enough to pass storm flows.
2. Middle Dam This dam is in the same general condition as reported a year ago. It is inactive and empty. It is now nothing more than a portion of a drainage system.
3. Upper Dam This dam is in the same general condition as reported previously. It is not active and water is not ponded.

C. Palmer Fire District #1 Upper Dam

The embankment of this dam was found to be in satisfactory condition. Some weed and a small amount of brush growth was noted but this condition is satisfactory for now. The spillway chute is still cracked a bit and vegetation grows from the cracks. The situation is not serious enough as yet to require a recommendation for repairs. The spillway notch has one small and three fairly wide stoplogs in place and these logs or planks take up about one-half of the height of the spillway. The Owner has been advised in the past that some of the stoplogs should be taken out each year in the Fall and kept out until after the heavy Spring runoff of the following year.

The gatehouse in the embankment, at the toe of the dam, seems tipped a little more than noticed in previous years. A close examination of the foundation stone work and the embankment shows no sign of motion. The dam was considered satisfactory when inspected.

D. Palmer Fire District #1 Lower Dam

The masonry spillway chute was found to be in fair condition. The embankment was well shaped but covered with a poor growth of turf. In general, the growth on the embankment consists of weeds. At the



left of the embankment near the toe and at the end of a drainpipe, a hole was noted washed in the earth. This hole should be filled with boulders and further erosion controlled. A stilling basin could be constructed in the hole by shaping stone fill to form a bowl with the outlet on the downstream side. An extension of the stone paving would prevent erosion downstream of the stilling basin. Water level in storage at the dam was at the crest of the spillway on the day of inspection and only one small stoplog was in place. The dam was considered safe when inspected but the eroded cavity should be corrected.

E. Holbrook Pool Dam

This structure is still breached as the result of the flood of August 1955 and the breach is wide and deep enough to pass storm flow.

F. Holbrook Pool Upper Dam

This structure, also breached by the flood of August 1955 is still breached and the opening is wide and deep enough to pass flood flow.

G. Mongo Dam

The embankment at this dam was in satisfactory condition. The concrete shaft spillway was satisfactory and the bar rack on the opening was clean and clear of debris.

H. Thorndike Fire and Water District Dams

1. Upper Dam This dam was found to be in very good condition. The embankment has been well maintained and is well shaped. The wooden spillway chute was in good condition. The dry cobblestone wall adjacent to each side of the spillway chute was satisfactory. Water level in storage at the time of inspection was at the crest of the wooden spillway chute.
2. Lower Dam The embankment at this dam is well shaped and the structure has been cleared of all brush growth. The toe area was in good condition and the spillway chute was found to be satisfactory. Water level in storage was at the crest of the chute. Shore areas of the reservoir have been well maintained this year and all brush has been cut.

Both of the dams owned by the Thorndike Fire and Water District have been given good maintenance this past year.

I. Lake Thompson Dam

The embankment of this dam was OK. It is covered with a good growth of sod and the structure was well shaped. The spillway chute was found to be in satisfactory condition. The floor of the deep chute is becoming a bit rough in that the cement is being washed out and stones of the concrete are now exposed. This water erosion however is negligible. There was no flashboard in place in the spillway this year. Two small syphon pipes, not working, were noted in the spillway and the pond level had been drawn down below spillway crest. A pile of sand had been dumped in the spillway and it would appear as if maintenance work is planned by the Owner, either at the spillway or the shaft well just out in the pond from the dam.

J. Lions Club Dam

The masonry at this dam was in satisfactory condition. The pond formed by the dam is small and in reality does not come under County control. Mass concrete poured at the toe on the downstream side of the masonry wall forming the dam has strengthened the structure considerably.

K. State Fish Hatchery Dams

1. Upper Dam The masonry at this dam and spillway were found to be OK. The spillway chute extension to the left was satisfactory and no further movement was noted in that the small crack has not opened up any more. Abutment areas of the dam were in good condition and water level in storage on the day of inspection was down about 18" below spillway crest.
2. Lower Dam The embankment at this dam is in excellent condition. The embankment carries the main roadway and is wide and deep for its relatively shallow height. The spillway masonry was in excellent condition and well maintained. Water level in storage was at the crest of the spillway. The culvert under the highway was OK.

L. Forest Lake Dam

The old stone masonry dam itself is in fairly good condition. However, abutment areas are poor and tree growth at the abutment areas should be cut down. The abutment areas should be improved and properly maintained.

All flashboards are off of the dam and water in storage is down to the crest of the stone masonry spillway.

In recent years, the removal of trees in the abutment area has been recommended time and time again. Should these trees become uprooted or should the root structure cause further damage to the abutment stones, failure of the dam could take place in one or both abutment areas.

M. Duda Dam

This pond was found to be drained and empty. The bottom of the pond is becoming overgrown with grass and weeds. The Owner plans to keep the pond empty for some time and has agreed to notify the undersigned before the pond is again reactivated.

N. Textile Printing Co. Upper Dam

This dam was found to be in good condition. The abutment areas were excellent. The canal masonry and related overflow spillway were good. It was noted that new flashboards were on the crest of the spillway dam and water was passing over the flashboards. The alignment and grade of the crest of the spillway structure were found to be very good. Stone masonry joints everywhere were considered satisfactory. No changes have been made at this dam since the time of the last inspection, except for the installation of new flashboards. The dam was considered safe when inspected.

O. Textile Printing Co. Lower Dam

This dam was in exactly the same condition as reported previously. The stone masonry is in excellent condition and though leakage occurs under the capstones at the right abutment, the condition does not decrease the stability or safety of the dam. No flashboards were on the spillway dam. At the right abutment area, where earth settled to form a small hole sometime ago, conditions have stabilized and no further settlement has been noted in recent years. Vegetation growing from the masonry at the left abutment is still not large enough to require removal. The dam was considered safe when inspected.

P. Self-Locking Carton Co., Upper Dam

This dam was in satisfactory condition. Abutment areas were OK. Seepage at abutments was noted to be about the same as in past years. Abutment masonry walls were in satisfactory condition. The stone filled dike at the left of the dam is OK. The dike and canal overflow at the right of the dam were found to be satisfactory.

Q. Self-Locking Co. Carton Co., Lower Dam

The dike downstream of this dam was found to be in good condition. The stone paving on the surface was satisfactory. All brush had been recently cut from the dike. The top of the dike has been filled with gravel and all low areas brought to proper grade. The masonry of the main dam was in satisfactory condition. Some water wear was noted but this is not too deep. Water level in storage was at the crest of the dam overflow. On the day of inspection, the canal spillway was operating and was satisfactory.

R. New England Power Co. Dam

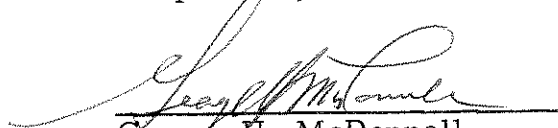
The power house was found closed and apparently abandoned on the day of inspection. The dam was in satisfactory condition and no flashboards were on the crest. This dam is to be taken out as part of the Three Rivers Flood Control project. Apparently the New England Power Company is not generating power at this site any more. The trash gate was open and water overflowed into the stream below the dam thru this gateway.

S. Sasur Dam

This dam was found in the same general condition as reported last year. Water in storage was down about 2 ft. below the top of the stoplog in the spillway structure. Only one stoplog was in the slots.

Settlement in the embankment at the toe to the left of the spillway seems to have stabilized and no further problem exists in this connection.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer  
October 14, 1964

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

All of the dams situated within the Town of Palmer have now been inspected at least once during the year 1964. The following is a report on the general condition noted at each dam within Palmer.

A. V. V. McNitt Dam

The washed out section of the earth embankment situated to the right of the spillway and just downstream from the concrete masonry wall should be repaired. The void should be filled with either packed earth of a gravelly nature or a closely nested boulder fill. One other void on the downstream embankment of the dam directly in front of the masonry wall to the right of the large cavity should also be filled with compacted gravel or nested boulders.

In order to prevent damage to the earth embankment portion of this dam, it would be advisable to increase the spillway capacity as has been recommended in the past. The spillway capacity could be increased for a small investment by raising the concrete wall along the upstream edge of the dam for a distance of a foot or 18". Against the downstream side of the wall, packed earth or gravel could be placed and then the entire embankment area loamed and seeded as needed to result in a good turf growth.

It was noted that seepage is still taking place in the main void to the right of the spillway but that no soil particles are moving with the running

water. It was also noted that the concrete wall adjacent to the spillway notch is beginning to show signs of wear and erosion on both sides of the spillway.

As mentioned previously, there is no danger to persons and property downstream should this dam actually fail. The large embankment downstream with the limited culvert thru the embankment would impound the water and release it slowly. However, the owner does have a nice clean looking pond that has aesthetic value and no doubt increases the value of the property in the general area. In order to prevent further damage to the dam and the possible loss of the dam with the resulting expensive repairs to replace the dam, it is recommended that the owner be advised that he should increase the spillway capacity and do the maintenance as recommended herein in order to protect his investment in the dam.

B. Hickson Paper Co. Dams

1. Lower Dam This structure, breached many years ago is still breached and the opening is wide and deep enough to pass storm flows.
2. Middle Dam Conditions at this dam are the same as those reported in previous years. The dam is inactive, the pond is empty and the entire area is becoming overgrown with brush and weeds.
3. Upper Dam No change was noted at this dam in that the structure is inactive, no water is ponded, and the entire area is becoming overgrown with brush and trees.

C. Palmer Fire District #1 Upper Dam

The embankment of this dam was found to be in good condition. It is well shaped and is covered with a fair growth of sod. It has been reasonably well maintained. No seepage was noted along the toe of the embankment. The gatehouse at the downstream toe of the embankment is still tipped but the foundation shows no sign of any shifting, cracking, or failure. The spillway chute is becoming spalled and some cracking is evident with some weed growth from the spillway floor. The condition is satisfactory for now. When it becomes bad enough to require attention, a recommendation will be made in connection therewith. Water level in storage was down below the crest of the stoplogs in the spillway opening. Three wide and one narrow stoplogs are in place

across the opening to the spillway chute.

D. Palmer Fire District #1 Lower Dam

The embankment of this dam is not in as good a condition as the embankment at the Upper Dam. Little or no sod is present on the embankment. Most of the embankment cover consists of weeds, some scrub grass and gravel. The spillway chute is becoming spalled and cracked with weed growth occurring in the chute. The condition is not bad enough as yet to require any maintenance or repair. However, in a few years, the spillway should be given attention.

No toe seepage was noted along the foot of the embankment. Water level in storage was just below the crest of the spillway.

The cavity on the downstream side of the embankment at the left end just below a discharge pipe still has not been repaired. As recommended a year ago, the cavity should be filled with boulders and further erosion controlled. No doubt this pipe discharges water quite infrequently but the existing cavity is quite large and it would be more practical and less expensive to make repairs in the immediate future than to allow the cavity to become more extensive and possibly cause damage to the dam embankment.

E. Holbrook Pool Dam

This structure is still breached as the result of the flood of August, 1955, and the breach is wide and deep enough to pass storm flow.

F. Holbrook Pool Upper Dam

This structure, also breached by the flood of August, 1955, is still breached and the opening is wide and deep enough to pass flood flow.

G. Mongo Dam

The embankment of this dam was found to be in good condition. The stone paved water side of the embankment was okay. The spillway inlet unit and the rack on top of the unit were in good condition. Water level in storage was at the crest of the masonry walls of the spillway inlet.



H. Thorndike Fire and Water District Dams

1. Upper Dam This dam was found to be in good condition. The spillway chute was okay and there was no sign of rot in the planks or timbers that form the spillway and the chute itself. Water level in storage was very near the upper edge of the top stoplog. Stoplogs were in place to their normal height in the spillway opening. Cobblestone walls on the downstream face of the embankment on both sides of the spillway were in good condition. No toe seepage was noted and the dam was considered to be satisfactory.
2. Lower Dam The embankment of this dam was in good condition. The spillway itself was okay. The wooden chute was well maintained and showed little or no sign of rot or wear. Water level in storage was at the crest of the normal flashboards that were in place in the spillway opening. A fair cover of turf was on the embankment and no seepage was noted at the toe of the dam.

I. Lake Thompson Dam

This dam embankment was found to be in very good condition. It is covered with a good growth of turf. The main wide spillway constructed after the flood of August, 1955, was found to be in excellent condition. The small channel that was the original spillway and is located in the middle section of the larger spillway, has been altered by replacing the old loose iron flashboard with a permanent plug of concrete. The height of the plug of concrete is about the same height as the old iron flashboard. The plug of concrete is a wedge poured in the floor of the small narrow channel spillway raising the invert of this channel to about the height of what formerly was the top of the iron flashboard. The concrete then slopes down four or five feet in the form of a wedge to join the existing concrete in the form of a feather edge.

Though the work constitutes a change in the spillway of a permanent nature and technically approval of this change should have been requested, the undersigned is of the opinion that the loss of spillway capacity is negligible and that the altered spillway is satisfactory. Any loss of spillway capacity because of this permanent construction would be so small that it would be difficult to compute and from a practical viewpoint, the difference in discharge capacity probably couldn't be determined even thru actual flow measurements.

The small spillway channel floor is becoming quite rough with the fines being washed out of the concrete. However, this condition of water wear is minor and it will be many years before any repair work will be necessary.

J. Lions Club Dam

This dam is in the same general condition as reported previously. It is simply a concrete wall across the small stream with a notch and stoplogs in the notch. The downstream side of the wall has been supported with mass concrete poured in the stream bed at the toe. As now existing, the structure still does not come under County jurisdiction because of its small size.

K. State Fish Hatchery Dams

1. Upper Dam This masonry dam and the masonry apron downstream thereof as well as the left auxiliary spillway were all found to be satisfactory. No leakage was noted and the abutment areas were in good condition. Water level in storage was down about 18" below the spillway crest. No flashboards were in place on the main overflow spillway of the structure but two 2" diameter pipes had been laid across the spillway and the space between had been filled with gravel. The result of this action was apparently to provide an extra 2" more or less of stored water during the earlier part of the year when brook flow was sufficient to keep the pond full. Though these pipes act as a flashboard, they do not detract from the spillway capacity. The pipes are loose and would easily be washed away in time of flood flow.
2. Lower Dam This dam was found to be in very good condition. The concrete masonry was in excellent shape. The embankment which carries the main road is wide and stable. Across the spillway a single pipe, about 2" in diameter, had been laid down to act as a flashboard as in the case of the Upper Dam. Water level in storage was at about the crest of the spillway and the structure as a whole was considered to be in excellent shape.

L. Forest Lake Dam

No flashboards were present on this dam. The stone masonry of the dam is becoming somewhat dilapidated, particularly in the area of both abutments and the dam should have attention in the not too distant future or

it will become more dilapidated and then become more expensive to maintain. Trees at the abutment areas, recommended for removal in recent years, still have not been cut down. In regard to this dam, I refer to a special letter-report submitted earlier in the year in connection with an investigation as to the low water level in Forest Lake as a result of the removal of the flashboards by the owner.

I discussed the dam with a resident that lives on the shore of the Lake and he confirmed the fact that the present owner of the dam, Mr. Holbrook, is interested in selling the dam. Consequently, since Mr. Holbrook has already been advised of the desirability of removing the trees from the abutment areas and doing certain maintenance work at the dam, there seems no necessity to notify him again. Conditions at the dam do not endanger persons and property downstream. It is very doubtful if the dam would ever be washed out and even if it did, the railroad embankment immediately upstream would control the rapid release of the water from Forest Lake, allowing only that water that could pass thru the culvert to be discharged thru any breach in the dam. Though the dam is dilapidated, it is one of those old well built stone block masonry dams that can withstand flood flows even when they have become dilapidated from lack of maintenance.

M. Duda Dam

This dam is in the same general condition as reported a year ago. The drain is open and the pond is empty. The bottom of the pond is becoming overgrown with grass and weeds. At the time of my last discussion with the owner regarding the dam and pond, he plans to keep it empty for some time and has agreed to notify the undersigned before the pond is ever again reactivated.

N. Textile Printing Co. Upper Dam

This structure was found to be in good condition. The crest of the masonry dam was well aligned and on good grade. Flashboards on the crest of the dam were at normal height. The right abutment was in good condition both as to the stone paving and the earth backfill. The left abutment structure and the related canal with spillway facilities were in good shape. All stone masonry joints on this dam and at the abutments were well maintained.

O. Textile Printing Co. Lower Dam

This masonry overflow dam was found to be in satisfactory condition.

Alignment and grade of the crest of the dam was good. No flashboards were on the crest of the dam and water level in storage was overflowing the length of the dam spillway by a depth of about 1". The abutment masonry at the right of the dam was found to be satisfactory. Leakage under the cap stones is still the same and is of no particular concern.

Some settlement has been noted in recent years at a point 30 feet downstream of the crest of the dam and to the back of the downstream abutment wall. This year, the cavity seems larger and settlement of the earth fill has progressed further. The cavity seems to be related to the steel pipe that extends thru the abutment and discharges into the river downstream of the dam. It is possible that this pipe is a storm drain and has a break or a leaking joint at a point just under the settled area. The pipe may be a drain for the Keys Street area on the right bank of the stream. This is the Belchertown, and thus Hampshire County, side of the stream. The Hampshire County Commissioners were notified of this condition at the dam and a letter was drafted for forwarding to the owners of the dam pointing out the cavity and the probable cause for its existence. Since Hampshire County Commissioners have notified the owner of the dam, there seems no need for any action to be taken by your Board in connection with this condition.

At the left abutment, vegetation growing from the joints of the stone masonry should be killed to prevent damage to the joints of the block masonry by the root structure of the vegetation.

This comment regarding the vegetation was included in the Hampshire County communication and thus the owner of the dam is aware of the condition.

P. Self-Locking Carton Co., Upper Dam

This masonry dam, the abutments and the abutment general areas were found to be okay. Seepage still emerges from the general vicinity of the lower end of the left abutment. However, this seepage has been occurring for many years and comes thru the heavy pervious fill to the left abutment. The rock fill dike that plugged the washout following the August, 1955 flood is in good condition. The general area of the dam in the vicinity of the canal and intake works was satisfactory.

Q. Self-Locking Carton Co., Lower Dam

This dam was in good condition. The crest is becoming quite spalled

but it is not much worse than noted a year ago. The toe of the dam at the bed of the river is okay. The abutment areas and the earth fill as well as the concrete and stone masonry were all found to be satisfactory. The dike downstream of the dam is in good condition and was found to be clear of brush. The top grade, though a bit rough, was found to be okay. The canal spillway was in satisfactory condition and it was functioning on the day of the inspection. Some concrete erosion was noted but it is not serious.

At the time of the inspection, water level in storage was at the crest of the main overflow dam.

R. New England Power Co. Dam

This dam is no longer in existence. The power house that was located downstream of and to the left of the dam has been completely removed. The large masonry dam that has existed in the river for many years has been entirely removed as a part of the flood control project for the Three Rivers area of Palmer. The river channel has been well shaped, graded and riprapped. At present, there remains no sign of the old masonry dam either in the stream nor on either of the two banks of the river. This dam will be dropped from the inspection schedule and should be dropped from County records.

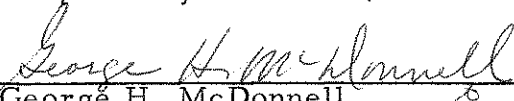
S. Sasur Dam

The pond at this dam was found to be empty. The embankment that carries the road leading from Three Rivers to Ludlow is apparently going to be improved as a result of a road widening project. General rough grading and filling work is underway that apparently will widen the embankment towards the downstream side. This embankment is very large as compared to the small pond that is formed.

The masonry inlet structure for the spillway was clean and clear of debris. The wingwalls were satisfactory and the void that was reported previously at the end of the left wingwall, though still existing, has become no worse.

It can be expected that when the road improvement work has been completed the dam will be even better than it has been in the past.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mg

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer  
October 19, 1966

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

All of the dams located within the Town of Palmer have now been inspected at least once during the year 1966. The following is a report on the general condition noted at each dam in Palmer.

A. V. V. McNitt Dam

This small dam was noted to be in the same condition as previously reported. The washed-out section of the earth embankment located to the right of the spillway and immediately downstream from the concrete masonry wall still remains unchanged. The concrete wall adjacent to the spillway notch is showing signs of wear and erosion. No repairs have been made to this dam as a result of the last report and the communication sent to Mr. McNitt by your Board.

At the recent inspection, in addition to the needed repair work and maintenance previously reported, it was noted that the embankment is becoming quite rough and there are small burrow holes to the right of the spillway.

The condition of the dam does not endanger persons and property downstream. It has been pointed out previously that the large embankment immediately below the dam contains a small

culvert to carry any flow released by the dam to and under State Highway Route 20. Should the dam fail, the large old railroad embankment would contain the released water and pass it slowly to the drainage valley below.

The owner of the dam, Mr. McNitt, has been advised of the condition of the dam from time to time in the past. Your Board sent him a letter of recommendation in October of 1964, but he has not taken any steps to protect his investment in the small dam and in the pond.

Since, in the opinion of the undersigned, the structure does not endanger persons and property downstream in spite of its condition, there is no action recommended regarding a directive to the owner to repair the embankment and spillway.

B. Hickson Paper Co. Dams

1. Lower Dam This dam, breached for many years, is still breached and the opening is wide and deep enough to pass storm flows. Since conditions have remained unchanged at the site of this old dam for a dozen years or more, it is recommended that the structure be dropped from the inspection list.
2. Middle Dam This structure has not been active for about ten years. The pond area has been dry at each inspection and, except in time of heavy surface runoff, no water is stored by the old small dam. The pond area is becoming overgrown with trees and brush. The small gate facility has been completely dismantled and the discharge pipe is wide open. The structure is now nothing more than a portion of a surface drainage system. It is recommended that this dam be dropped from the inspection list.
3. Upper Dam This dam is in the same general condition as noted for the Middle Dam. The old pond bed is completely overgrown with brush and trees. The loose small stone dam at the connecting canal between this dam and the Middle Dam has been partially breached and as existing, is nothing



more than a small pile of stones in the channel. The side embankment has been breached for the release of any stored water. Since this structure has been inactive for at least a decade and apparently has been abandoned, and since it operates only as a part of the local drainage system, it is recommended that this dam also be dropped from the inspection list.

Unless the undersigned is instructed otherwise by your Honorable Board, no further inspections will be made at the three dams now or formerly owned by Hickson Paper Co.

C. Palmer Fire District #1 Upper Dam

The embankment was found to be in satisfactory condition. Little to no toe seepage was noted. There was some seepage through the floor of the spillway chute near the bottom of the chute but the amount was small and the condition is not serious. At the crest of the spillway chute three flashboards were in place. These were the usual three wide and one narrow flashboard. Water level in storage was down about one foot below the crest of the spillway flashboards.

The condition of the concrete forming the spillway chute was fair. Turf on the embankment was in fair condition.

The gatehouse at the toe of the dam is quite dilapidated, boards and timbers are rotting and the small building is slightly off of the foundation. The poor condition of this small building, though tipped a bit, seems to be okay.

D. Palmer Fire District #1 Lower Dam

The embankment of this dam is not in as good condition nor is it as well maintained as the embankment forming the Upper Dam. The sod cover is poor. The majority of the cover on the embankment consists of weed growth.

The spillway chute is in fair to poor condition and is in need of maintenance. The small wooden bridge over the spillway at the crest has been removed except for a few timbers. The remaining timbers are quite rotten. The usual flashboards were found to be in place at the crest of the spillway and water level in storage was down about two feet more or less, from the top of the upper flashboard.

The elevation of the top of the dam embankment slopes downward in the vicinity of the spillway structure. The embankment should be horizontal for its entire length and, to accomplish this condition, the side wall of the spillway towards the embankment should be of sufficient height whereby the top of the masonry would be equal to the top of the embankment elevation.

The erosion as noted at the discharge end of a drain outlet to the left of the embankment and on the downstream side has been corrected somewhat by placing field stones and boulders as a lining at the bottom of the erosion. As existing, conditions are satisfactory and erosion should now be fairly well controlled.

Little or no toe seepage was noted at the foot of the embankment. Safety of this dam could be improved by correcting the low grade condition of the top of the embankment adjacent to the spillway as outlined hereinbefore. It is recommended that this be called to the attention of Palmer Fire District No. 1.

E. Holbrook Pool Dam

This structure is still in the same breached condition as existing since the flood of August, 1955. The breach is wide and deep enough to pass storm flows. The site of this dam should be inspected once more and if conditions continue as existing during the past ten years, then it is recommended that this old dam be dropped from the inspection list.

F. Holbrook Pool Upper Dam

This small dam was also breached by the flood of August, 1955, and the breach still exists. It is wide and deep and can pass flood

flows. The pond area is becoming overgrown with brush and it is doubtful if the structure will ever be reactivated. It is recommended that one more inspection be made of the structure either in 1967 or 1968 and, if conditions remain unchanged, this dam should also be dropped from the inspection list.

G. Mongo Dam

The embankment of this dam was found to be in satisfactory condition. Though it is rough in shape and is partially overgrown with brush, it is sound and safe because of the downstream massive Turnpike access road fill. The concrete masonry spillway inlet with the horizontal bar rack was found to be in good condition. No debris was in the spillway inlet nor on the bar rack. Water level in storage was at the crest of the spillway shaft.

H. Thorndike Fire and Water District Dams

1. Upper Dam This embankment has a very poor turf cover. The surface of the embankment is mostly sand and gravel but it is fairly well packed and shows no sign of erosion. The dam is small in size and has a very low height. The wooden spillway chute was found to be satisfactory. Water level in storage was down about 8" from the top of the stoplogs. Seepage is practically zero along the toe of this small dam.

The downstream face of the embankment and the cobblestone walls on both sides of the spillway were found to be in good condition.

2. Lower Dam This embankment was found to be in good condition. It has a fair turf cover. Little to no seepage was noted along the toe. The spillway chute was found to be okay. One small flashboard was in the crest of the spillway and water level was at the top of this flashboard.

I. Lake Thompson Dam

The earth embankment sections forming this dam were found to be in good condition. The turf surface of the embankment was in fair con-

dition. The downstream stone masonry walls supporting the dry side of the embankment were okay. No toe seepage was noted.

The concrete spillway chute was in good condition. Water level was down about two feet from the crest of the chute. No flashboards were in the spillway chute entrance.

J. Lions Club Dam

This small concrete dam is in relatively good condition. Stoplogs were out and no pond was formed. This dam still does not come under County jurisdiction because of its low size, small pond and small drainage area. It is checked annually, however, since it is adjacent to the main road and since there is always a possibility that the concrete wall might be raised to exceed the ten-foot limit.

K. State Fish Hatchery Dams

1. Upper Dam This concrete masonry dam was in good condition. On the crest of the dam horizontal 2" pipes are still laid in place with sod between the pipes. This forms a low flashboard at the crest of the concrete spillway dam. Water level in storage was down about 12" from the crest.

Abutment areas were in good condition. The concrete paving and the concrete training wall to the left of the dam were satisfactory.

A new wooden foot bridge has been built from the dam out to the intake shaft and an electric motor-operated water aerator has been installed.

2. Lower Dam The concrete masonry forming this dam was found to be in very good condition. This dam also has a horizontal iron pipe flashboard across the crest of the right spillway. Normal flashboards were noted to be in place in the left spillway. Water level in storage was about 3" below the top of the flashboards. All concrete masonry forming this structure and the conduit under the roadway was found to be in good condition.

The dam embankment carries the main highway and it is massive for the small height of the dam. The embankment was in very good condition. The conduit through the embankment was okay.

L. Forest Lake Dam

No flashboards were on the crest of this old stone masonry dam. Trees still grow from the abutment areas. In spite of repeated recommendations during the past ten years or so, the owner has not seen fit to remove the trees.

Though the dam is quite dilapidated, the old stone wall forming the dam is still reasonably well aligned and on fair grade. The height of the dam is only 3-1/2 feet above the bed of the stream.

Directly upstream from the dam is a railroad embankment of fair size and through the embankment are two culverts. Should the dam ever fail, Forest Lake could only be released at the rate water could flow thru the railroad embankment culverts. Also, the lake bed immediately upstream of the dam has been filled in almost to the crest elevation of the dam. Very little water is stored between the railroad embankment and the dam.

In the opinion of the undersigned, though the dam is somewhat dilapidated and the abutments are endangered by the existence of the trees, the structure does not endanger persons and property downstream.

M. Duda Dam

This structure is still inactive. The drain is open, the pond is empty and the pond bottom is becoming overgrown with weeds and small brush. The owner apparently does not intend to reactivate the dam. He has agreed to notify the undersigned should he ever decide to form a pond again.

N. Textile Printing Co. Upper Dam

This dam was found to be in good condition. The stone masonry crest and capstones on the crest were in good alignment and on good grade. The normal flashboards were present on the crest of the dam. Water was overflowing the top of the flashboards.

The right abutment masonry was in very good condition. The left abutment masonry and the canal spillway wall were all okay. The joints of the stone masonry at the dam and both abutments are well maintained.

The face of the canal spillway wall discharges small quantities of water through the stone masonry joints. This condition is not serious and is normal in this type of construction.

No changes have taken place at this dam since the time of the last inspection and the structure was considered safe when checked.

O. Textile Printing Co. Lower Dam

This dam was found to be in good condition. The capstone crest was noted to be on good grade and good alignment. Water level stored by the dam was at the crest of the spillway and a thin sheet of water overflowed the crest. No flashboards were on the spillway.

The left stone block abutment was in good condition. Some vegetation is growing from the joints of the block masonry but the growth is not too thick at present.

The right abutment structure was in good condition. Water still leaks under the capstone at the right abutment step adjacent to the right end of the dam. This leakage has been occurring for many years and it is not harmful to the stone masonry structure.

One stone is missing from the right abutment wall downstream of the dam. The stone has been dislodged from the top of the wall. This missing stone does not endanger the dam whatsoever.

Settlement of earth noted in the past behind the right abutment wall has not progressed any further. Apparently this condition has become stabilized. This condition is apparently related to a leak in a storm drainage pipeline that discharges into the River through the right abutment wall just downstream of the dam. The condition was pointed out to the Town some time ago and apparently corrective action has been taken.

No change has taken place at this dam since the time of the last inspection and the structure was considered safe when checked.

P. Self-Locking Carton Co. Upper Dam

This dam was noted to be in the best condition observed in a number of years. The left abutment wall has been covered with gunite and plastered concrete. Seepage to the left of this wall has been greatly decreased. The wall has been widened at the upstream end, particularly on the water face.

The rock filled dike to the left of the left abutment was noted to be in very good condition.

The concrete masonry dam was found to be in very good condition. No flashboards were on the crest and the flow of the stream was passing over the dam spillway.

The right abutment stone masonry wall has been pointed and all joints are now well filled and covered with concrete. The earth back of the wall is in good condition and no sink holes or settlement of any importance was noted.

The canal dike was in satisfactory condition. The wet side stone face was good. The canal overflow spillway was in satisfactory condition. The right abutment wall has been gunited and the left wall has had all joints pointed. Some seepage was noted at the rear of the right abutment wall and this seepage emerged over the top of the wall near the downstream end. Seepage is low in quantity and is not serious in nature. On the whole, the structure is in good to excellent condition.

Q. Self-Locking Carton Co. Lower Dam

The canal dike was found to be in satisfactory condition. At the canal spillway, the upstream concrete wall to the left of the spillway is leaning in towards the canal and this wall should be repaired.

The main dam was found to be in satisfactory condition. The concrete is somewhat eroded but the condition is no worse than noted in recent years. No flashboards were in use on the crest and water level was overflowing the crest of the spillway dam.

The left stone abutment wall was okay. The right concrete abutment wall and the earth fill at the wall was satisfactory.



R. Sasur Dam

This dam was found to be in satisfactory condition. The spillway inlet which is the inlet to the highway culvert was found to be in satisfactory condition. No debris was in the inlet and stoplogs were in place to their normal height. Water level in storage was down nearly two feet from the crest of the upper stoplog.

The embankment of the dam carries the main highway leading from Three Rivers to Ludlow. This embankment fill has been widened and greatly improved during the past two years and as a result, the dam embankment is thus more massive and stable than ever before.

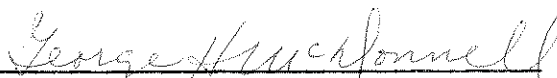
S. Lizak Dam

Conditions at this dam are in general, the same as reported to your Board in the special report of October 25, 1965. The concrete floor of the spillway has been removed and the dam embankment has been excavated to a depth of about six feet below the top of the embankment. The downstream concrete masonry wall at the face of the spillway has been cut so that only a small pond of water will be formed. The old masonry walls of the spillway that were ordered removed have been leaned back against the side slopes of the cut through the embankment. A small pile of boulders and stones was noted in the area and it is apparent that the owner plans to riprap the spillway channel through the embankment. It is recommended that this be done and that the owner take steps to provide a sufficiently stable paved flume to allow for the safe passage of flood flows.

The embankment sections of this dam are formed of a granular fill. No loam and seed has ever been placed on the surfaces. Much of the surface areas are soft and quite sandy. All surfaces of the embankment should be loamed and a good growth of turf developed.

The right embankment adjacent to the spillway needs maintenance and repair work. The embankment slopes down towards the concrete masonry wall and, if flood flow conditions should occur, flood flows could break through this portion of the embankment and wash out the embankment adjacent to the spillway notch. The embankment should be brought to grade with compacted fill all of the way to and abutting the spillway masonry downstream wing wall.

Respectfully Submitted,



George H. McDonnell  
County Hydraulic Engineer

GHM/app

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer  
April 16, 1968

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has recently re-inspected the three dams in Palmer reported as in need of certain maintenance and repair work during the routine inspection of 1966.

- A. Campers Country Club, Division of Heritage Hills Farm.
- B. Diamond National Corporation Lower Dam.
- C. Fire District No. 1, Palmer - Lower Dam.

The dam at the Campers Country Club, Division of Heritage Hills Farm is in satisfactory condition insofar as spillway is concerned. The cut-down spillway structure is operating satisfactorily and there is no evidence of any erosion at and upstream of the spillway notch. There is no turf cover on the embankment. Surface areas are quite sandy. In spite of this condition, there is no evidence of surface wear or gully formations as a result of surface wash.

At the Diamond National Corporation Lower Dam the upstream concrete wall has been replaced at the canal spillway. Thus, the owner of the dam has complied with the recommendations.

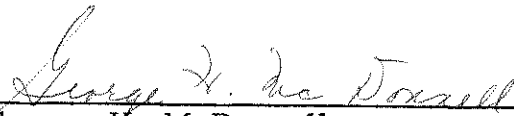
On the day of inspection of the Lower Dam of Palmer Fire District #1 on Friday, April 12, 1968, it was observed that the reservoir is empty and that maintenance work is being done. Though the embankment remains in about the same condition as previously reported, it is entirely possible that the various recommendations as contained in the letter-report to the Board of Water Commissioners will be followed while the dam is out of service.

**TIGHE**  
**& BOND** CONSULTING ENGINEERS

-2-

Since all dams within Palmer are to be inspected again this year,  
no further action is recommended on the Lower Dam of Palmer  
Fire District #1 at this time.

Respectfully submitted,

  
\_\_\_\_\_  
George H. McDonnell  
County Hydraulic Engineer 2

GHM/amd

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer  
June 11, 1968

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Every dam situated within the Town of Palmer has now been inspected at least once during the year 1968. The following is a report on the general condition noted at each of the dams within the Town of Palmer.

A. V.V. McNitt Dam

This dam is in the same condition as reported in previous years. Some earth of the embankment has been washed out on the downstream side of the concrete wall just to the right of the spillway. A portion of the void has been filled with field stones. Additional field stone fill should be placed in this void. There is a second washed out area further to the right on the embankment just in front of the concrete wall and this void should be filled with compacted earth.

The concrete wall on each side of the spillway is becoming worn and spalled. At the crest, the concrete wall is breaking and failing. Should it break away completely, the crest of the spillway will be lengthened and the condition should not endanger the dam.

As reported previously, immediately downstream of the dam there is a large embankment containing a small culvert through which released water from the dam must pass to go under State Highway Route 20 and to reach the adjacent river. Should the dam ever fail, the old large railroad embankment would contain the released water and pass it slowly to the drainage area below. Since this dam, even

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though it does need maintenance and attention, does not endanger persons and property downstream and, since the work as recommended is not absolutely necessary for the safety of the structure, there is no need to direct the owner to repair the embankment and the spillway masonry.

## **B. Palmer Fire District #1 Upper Dam**

The embankment of this dam was found to be o.k. The toe area is draining and seeping a fairly large amount of water. The lower reservoir which normally backs up and floods the toe of the upper reservoir is empty and will probably remain empty for some time. As a result of the exposure of the toe of the upper dam, the seepage is now evident. The seepage water is clear and there is no evidence of earth movement. However, Water Department personnel should observe the toe area from time to time to be certain that the seepage rate does not increase to a point wherein earth begins to move.

New flashboards have been placed in the spillway to the normal level. Water in storage was down about 6" below the elevation of the upper stoplog.

The spillway chute should be repaired wherever the wall and the floor concrete is breaking up.

The small gatehouse at the toe of the dam is quite rotten and is still leaning. This condition is not dangerous to the safety of the dam.

## **C. Palmer Fire District #1 Lower Dam**

The reservoir formed by this dam is empty and has been empty for some time. The Superintendent of the Water Department has informed the undersigned that the reservoir has been de-activated because of iron problems in the water. If this reservoir is not to be used then the flashboard in the spillway should be taken out and the small dirt dam removed from the crest of the spillway. The concrete side walls of the spillway should be raised to the level of the top of the dam embankment and the embankment should be extended horizontally to the raised walls. This recommendation has been made in the past to improve the safety of the dam in time of flood flow, but the Water Department has not taken any action as yet in connection therewith.

The spillway chute should have walls and floor repaired where work of this nature is necessary.

D. Holbrook Pool Dam

This structure, breached during the flood of August, 1955, has not changed since the flood and the breach now existing is wide and deep enough to pass storm flows. The old pond area is becoming overgrown with brush. There seems to be no further need to inspect this old dam and it is recommended that it be dropped from the inspection list.

E. Holbrook Pool Upper Dam

This small dam located directly above the dam just described was also breached by the flood of August, 1955. No repairs have ever been made. The pond area is empty and is heavily overgrown with brush. The breach through the dam is wide enough and is deep enough to pass flood flows. It is recommended that this dam be dropped from the inspection list.

F. Mongo Dam

The embankment forming this dam was in satisfactory condition. It is becoming overgrown with brush. However, brush growth on this structure does not affect its safety because of the huge turn-pike access road fill immediately downstream of the dam.

The spillway inlet shaft was o.k. The bar rack was clear of any debris. Water level in storage was overflowing the crest of the vertical spillway shaft.

G. Thorndike Fire and Water District Dams

1. Upper Dam The embankment is fairly well shaped and though it has little turf on the surface there is no evidence of surface erosion. Hardly any vegetation grows on the embankment and what is growing consists of weeds. The spillway was noted to be satisfactory. Water level was at the crest of the stoplogs which were at normal height. There was no seepage along the wooden planked spillway structure. No toe seepage at all was noted.

2. Lower Dam This small embankment has a very poor turf cover. Most of the vegetation is weeds. The spillway chute was found to be satisfactory and the usual single flashboard was in place in the crest of the chute. The chute is a wood and timber structure in fair condition. No toe seepage was noted though the downstream area is swampy and quite wet. This results more from topography than noticeable seepage through the small embankment of this dam.

H. Lake Thompson Dam

The earth embankment sections which form this dam were noted to be in good condition. Turf cover on both sections was good. The downstream stone masonry wall was in satisfactory condition and no seepage was noted at all along the toe of the downstream wall. The spillway concrete was satisfactory. The central spillway trough was o.k. No stoplog was in place in the upper end of this trough. The left slot in the concrete is broken and would need to be repaired to properly hold the stoplog. Water in storage was down about 2" below the crest of the spillway.

I. Lions Club Dam

This dam still does not come under County jurisdiction because of its low size, the small pond formed and the limited drainage involved. However, it is checked each time dams in Palmer are inspected since it is adjacent to other dams which are inspected and it is just off of a main roadway.

On the day of inspection no water was ponded. The stoplogs were entirely out of the dam. The concrete masonry of this small structure looked good.

A new fence-enclosed concrete shallow swimming pool, fairly sizeable in area, has been recently constructed just to the right of the dam and above the old artificial asphalt paved pool located to the right and below the dam. The new pool will apparently be fed with re-circulated filtered water and it would appear as if the small dam may no longer be used.



J. State Fish Hatchery Dams

1. Upper Dam This concrete structure was noted to be in fair to good condition. Water level was at the crest of the spillway. The spillway notch still operates with the small diameter pipes laid horizontally in the notch with sod placed between the pipes. The pipes have the effect of raising the water level about 2" more or less.

Abutment areas were noted to be good and the training wall of concrete together with the flood flow concrete apron at the left of the spillway were all o.k. The toe area was noted to be good. The aeration unit reported at the time of the last inspection is still in the pond but was not operating.

2. Lower Dam The concrete spillway section at the right of the dam was o.k. The horizontal small diameter pipe was still laying across the crest and resulted in an increase in pond level of about 2". The left spillway had stoplogs in place to the normal height and these were supported with a central vertical beam in the usual manner. The conduit under the road and the embankment was in good condition. The embankment carries the main highway in this area and thus, it is a massive embankment for the small vertical height of dam involved. No toe seepage was noted.

K. Forest Lake Dam

This dam is still quite dilapidated. It is a low stone masonry structure. Joints leak at the right end and at the abutments. Large trenches directly in the abutment areas of the dam still exist and their presence will someday undoubtedly cause the stone masonry to become dislodged. At the left abutment adjacent to the roadway, the earth is being undermined at the tree growing from the abutment and at some future date there will probably be a failure of the dam at this location.

Just upstream of the dam there exists a sizeable railroad fill carrying railroad tracks across the narrow strip of water leading to the dam and spillway. Failure of the dam would result in water being released at a rate controlled by the culverts thru this fill.

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One culvert is a concrete pipe fairly high in the railroad embankment and thus this culvert would not operate very long following a failure of the dam since water level would soon drop below its invert. The other culvert is completely inundated but does not appear to be very large.

There is a flashboard on this dam about 12" in height. It is held in place with weak pin supports. On the day of inspection it was being maintained by persons other than the owner of the dam.

In the opinion of the undersigned, though the dam is somewhat dilapidated, the structure does not present any great danger to persons and property downstream. However, the fact that the dam is dilapidated and is in need of maintenance and repairs and has been so reported for a number of years, it is recommended that the owner again be advised to improve conditions at the dam and particularly at the abutment areas.

### **L. Duda Dam**

This dam is still inactive. The pond is empty and the bottom is becoming overgrown with weeds and small brush. The owner apparently does not intend to re-activate the dam. A number of years ago he agreed to notify the undersigned should he ever decide to have a pond formed again by the dam. In recent years, the entire area has become a motor vehicle graveyard and the land in the vicinity of the dam is now fairly well covered with junked trucks and automobiles.

The undersigned sees no need to continue inspections at the site of this inactive dam and unless directed otherwise, no further inspections will be made.

### **M. Textile Printing Co. Upper Dam**

This dam was noted to be in good condition. The abutments were o.k. and joint pointing was fair to good. Crest stones were o.k. and they were noted to be on good grade and good alignment. The usual flashboards were on the crest of the dam. The toe area was satisfactory. The canal masonry wall was good. Some of the stone masonry joints seep a bit just downstream from the crest of the dam. In general, this dam is in very good condition.

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N. Textile Printing Co. Lower Dam

The crest at this dam is in good condition. No flashboards were on the dam and water level was above crest elevation. Water is leaking through the stone masonry joints at the right end of the dam and at the old abandoned drawdown gate structure. This leakage has occurred for many years and it does not affect the safety of the dam.

Both stone masonry abutments were found to be in good condition. One stone is missing from the top of the right abutment wall just downstream of the dam proper. The sink hole previously reported in the earth fill behind the right abutment and about 30 feet downstream of the dam crest still exists. It does not seem to be any larger than previously reported and is evidently the result of a broken drainage pipe discharging into the river through the right abutment. This condition does not endanger the dam.

O. Self-Locking Carton Co. Upper Dam

The dike along the canal leading from the dam was in satisfactory condition. The stone surfaced water face was o.k. The spillway in the canal dike was well maintained and in good condition.

The main dam was noted to be very good. No flashboards were on the crest and water was flowing over the dam spillway. Both abutments were in good condition. The gunite placed on the left abutment is standing up and wearing very well.

The right abutment stone masonry was o.k. and joints were well pointed.

The rock fill to the left of the main dam was in good condition. Seepage through this fill and under the left abutment is much reduced as compared to the seepage which occurred in previous years.

P. Self-Locking Carton Co. Lower Dam

The dam itself is in good condition. There is some erosion of the concrete of the overflow section but the erosion is normal and not as yet very deep. There were no flashboards on the crest of the overflow and water was passing over the crest at the time of inspection.

The left stone masonry abutment and the related heavy stone fill back of this abutment and between the abutment and the railroad tracks were all o. k.

At the right abutment of the dam the concrete wall is in satisfactory condition. However, at the canal gatehouse, the concrete grouted cobblestone paving at the left side of the canal is showing signs of movement. Individual cobblestones are moving away from the grout which formerly bound the stones together. Also, the top of the sloping canal wall is breaking up and a large slab of concrete has been broken off. The cause of this movement should be checked and corrective action taken if need be.

The canal dike was noted to be in good condition. The spillway in the dike had been repaired by construction of a new concrete wall at the left side and entrance to the spillway. The concrete in the canal spillway side walls is eroded on the surface but erosion is still not bad enough to require attention.

Q. Sasur Dam

This dam forming a small pond was noted to be in the same condition as reported in the past. The intake structure was o. k., it was free of debris and water level in storage was at the spillway crest. The fill forming the main road leading towards Ludlow is the embankment of this dam. It is very wide and massive for the shallow depth of pond involved. Water discharged from the pond is carried under the fill in a highway culvert.

R. Lizak Dam

Conditions at this dam are the same as reported in our special report of April 16, 1968. The cut down spillway structure is operating satisfactorily and there is no evidence of any erosion at or upstream of the spillway notch. The spillway can adequately pass flood flows.

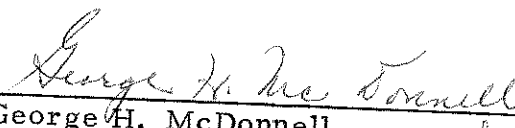
The embankment sections of this dam which are now inactive, for all practical purposes, are of a sandy granular fill. The embankments have never been loamed or seeded.

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Apparently the owner has not decided whether he will further develop this area or abandon the work already done. The owner has been advised in writing in the past, that plans and specifications for a proper dam must be filed with the County before any water can be stored over and above that now stored by the breached and cut down spillway.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

***TIGHE  
& BOND***

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CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Palmer  
October 27, 1969

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Each dam situated within the Town of Palmer has now been inspected at least once during the year 1969. The following is a report on the general conditions noted at each of the various dams located within Palmer.

A. V. V. McNitt Dam

This small dam is in general about the same as observed and reported in recent years. The earth embankment is poor but serviceable. Voids in the embankment should be filled with compacted material and preferable fieldstones or riprap.

The concrete portion of the structure is becoming spalled and worn. The concrete is breaking away and failing at the crest. The condition however, does not endanger the dam. A new foot bridge has been built across the spillway.

Immediately downstream of the dam, there is a very large embankment containing a small culvert through which any water released by the dam must pass to reach and then go under State Highway Route 20. Should this small dam ever fail, the downstream old railroad embankment would contain the released water and pass it slowly to the drainage area below. Though the dam is in need of maintenance and attention, its existence in its present state of repair does not endanger persons and property downstream.

B. Palmer Fire District #1 Upper Dam

The embankment of this water supply dam is o.k. It is well shaped and all brush growth is cut down and under control. The toe area was noted to be satisfactory. The road extending across the top of the dam is in good condition. There are no cracks or settled areas.

Normal stoplogs with the usual earth dike were noted in the spillway. The spillway chute is in fair condition but some vegetation is growing from the cracks. The condition is not too bad as yet, but weed growth will need to be controlled in the not too distant future to prevent masonry damage.

Water level in storage at the time of inspection was about 3 feet below the top of the upper stoplog.

C. Palmer Fire District #1 Lower Dam

The spillway opening at this dam has been cleared of the flashboards and the small earth dike that was formerly in front of the flashboard. The embankment itself is in fair condition insofar as shape is concerned. It is becoming overgrown with weeds and small brush growth. If the dam is to continue to store water, it should be maintained properly.

The toe area was dry and water level in storage was at spillway crest elevation. The spillway chute is in fair condition but will be in need of maintenance and concrete repair in the not too distant future.

In the opinion of the undersigned, both of the dams of Palmer Fire District #1 are safe. If deterioration of the spillway masonry and lack of embankment maintenance at the Lower Dam is observed during the inspection next year, then it will be recommended that a communication be sent to the Board of Water Commissioners advising repairs and maintenance work as deemed necessary.



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## **CONSULTING ENGINEERS**

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D. Mongo Dam

The dam embankment was found to be ok. It is partly overgrown with brush, but this growth does not effect the safety of the structure. The dam is quite huge for the small pond involved, since the main portion of the embankment is the large earth fill for the access road leading to the Massachusetts Turnpike from the Palmer toll plaza.

The concrete of the spillway shaft is in good condition. There was no debris on the horizontal bar grill on top of the spillway opening and none in the shaft. Water level in storage was a few inches below the crest of the shaft. The water level in the pond is being drawn down by use of syphon hoses. The draw-down gate is closed tightly. The gate appears serviceable as does the operating mechanism.

E. Thorndike Fire and Water District Dams

1. Upper Dam

The embankment of the dam is in fairly good condition. It is well shaped and, though the turf cover is poor, there is very little wear or erosion on the embankment surface. There is no brush growth whatsoever.

The wooden spillway is in satisfactory condition. No seepage was noted at or around the spillway. Water level in storage was at the crest of the spillway. The toe area of the embankment was dry.

2. Lower Dam

The embankment forming this dam is very small. It is in fair condition, reasonably well shaped and has a stable surface. Very little toe seepage was observed. The wooden spillway facility is satisfactory. Water level in storage was at the crest elevation of the spillway chute. Both dams are considered safe.

F. Lake Thompson Dam

On the day of inspection water level in storage was down about

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1 foot below the crest of the spillway. The earth embankment sections of the dam were o.k. No brush was growing from the embankment areas and the sod cover was good.

The downstream stone masonry wall was noted to be o.k. No toe seepage was observed.

The spillway concrete was in good condition. There were no flashboards on the crest of the spillway. The upstream concrete wall at the spillway shows some breaking and erosion as well as weathering. The wall is satisfactory for now, but its condition will be watched and if repairs are needed next year, a recommendation will be made in connection therewith.

In the opinion of the undersigned, this dam is in good condition and is safe.

G. Lions Club Dam

This small dam consists of a concrete wall across the brook that passes through Burleigh Park. Adjacent to the dam is an artificial swimming pool and a wading pool.

The concrete wall which forms this dam is small. The center section has a cut out area where stoplogs are placed when the owner desires to pond water. The elevation of the water in storage can be varied by the grade to which stoplogs are set.

On the day of inspection, all stoplogs were out of the slots and no water whatsoever was behind the dam.

This dam stores very little water. It is estimated that when full to capacity, storage is less than 200,000 gallons. The drainage area is only a fraction of a square mile and the height of the concrete dam is but 6 feet.

The dam does not come under County jurisdiction and should be dropped from the inspection routine. The swimming, and wading pools apparently serve people using the area at the present time.

H. State Fish Hatchery Dams

Upper Dam

This concrete spillway dam was found to be o.k. There is hardly any sign of erosion or wear on the masonry. Water level in storage was at the crest of the spillway. The spillway still contains a small stoplog feature in that two inch iron pipes are layed horizontally across the crest and sod has been placed between the pipes. The result is that stored water level is raised about 3 inches above masonry crest elevation.

The airator formerly on the pond surface has been removed.

Abutment areas of the dam are o.k. Toe area and the concrete apron in front of the main spillway section is good.

The left training wall is good but a crack is opening at the point where this left training wall joins the main portion of the dam. The top of the wall downstream of the crack has settled about 1/2 inch below its original elevation. There is no sign of any damage or cracking to the left apron floor. The condition is satisfactory for now, but the wall will be watched in the future for any movement and the further opening in the crack.

In the opinion of the undersigned, the dam is safe.

Lower Dam

This dam is in about the same condition as noted last year. The concrete spillway section at the right of the dam is good. The horizontal small diameter pipe is still laying across the crest and it results in an increase in pond level of about 2 inches.

The left spillway had stoplogs in place to the normal height and these were supported as usual with a central vertical beam.

The left vertical stoplog slot of this left spillway, is eroding and the concrete is breaking off. Repairs should be made to the masonry before it deteriorates much further. The condition is

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## **CONSULTING ENGINEERS**

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not dangerous but could become dangerous in the next year or two. Repairs made now at a nominal cost, may prevent much more extensive and expensive repairs at a later date. The fish hatchery personnel should be advised of the condition.

### I. Forest Lake Dam

The old stone masonry spillway is in fair shape. The crest is at a reasonable grade and on fairly good alignment. There are no flashboards on the crest. The flashboards pins remain. Water level in storage is at the crest elevation. The toe area of the dam is fair.

Tree growth at the right abutment is partially dead. The stone work and earth at the right abutment is rough in shape but it is serviceable.

The large tree still grows from the left abutment and the roots of this tree entwine the stone work, and the packed earth forming the short left abutment. Though the dam is quite dilapidated and receives little or no maintenance, the old stone structure itself is safe. Any loss of the dam or of either of the abutments, would release water to the valley below at the maximum rate that water could pass through the culvert under and across the railroad embankment, just above the dam. Loss of the dam would result in the railroad embankment becoming the dam.

The height of the stone masonry dam is only about 4 feet.

### J. Duda Dam

This dam is still inactive. The pond is empty and the bottom is overgrown with weeds and wild vegetation. The owner apparently does not intend to re-activate the dam. As reported previously, the owner agreed to notify the undersigned should he ever decide to have a pond formed again by the dam. In recent years, the area surrounding the dam has become a motor vehicle graveyard and the surface of the land is now littered with junked trucks, automobiles, equipment and miscellaneous other items.

K. Textile Printing Company Upper Dam

The stone masonry forming this dam is in fairly good condition. On the day of inspection normal flashboards were on the crest and water level in storage was just above elevation of the upper flashboard.

The stone masonry and the earth fill at the right abutment were noted to be o. k.

In general, the left abutment was o. k. However, at the downstream end of the stone abutment wall which separates the canal headworks from the dam and river, masonry is in need of jointing repairs and the corner of the dam crest, left end of the dam, directly abutting the left abutment wall, has settled and shifted a bit. Motion has been minor. The condition will be observed during the inspection next year, and if there is further movement a recommendation will be made regarding needed repairs.

The canal spillway wall was o. k. Some of the joints in the canal wall at the spillway leak and water squirts from the joints into the river below the dam. This condition is not dangerous. The gatehouse at the canal headworks is about 50% torn down. All gates are closed or are very nearly closed.

Water and water power available at this dam apparently are not used now since the mills in Bondsville, downstream of this dam, were burned in the great Bondsville fire.

L. Textile Printing Company Lower Dam

Conditions at this dam are in general the same as they were reported a year ago. The crest of the dam is in good condition. It is on good grade and has good alignment. No flashboards were on the crest and water level was at about crest elevation.

Water leaks through the stone masonry joints at the right end of the dam at the old abandoned drawdown gate structure. This leakage has occurred for many years and it does not effect the safety of the dam.

# **TIGHE & BOND** CONSULTING ENGINEERS

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Both stone masonry abutments were found to be in good condition. One stone is missing from the top of the right abutment wall just downstream of the dam proper.

The sink hole previously reported in the earth fill behind the right abutment wall and about 30 feet downstream of the dam crest has expanded in depth and width. This settlement is undoubtedly due to a leak in the drain pipe passing through the abutment area and discharging into the river just in front of the settled area.

This drain is probably owned by the Town of Belchertown. The undersigned will notify the Belchertown Selectmen of the condition, so that repairs to the drain can be made and the sink hole filled in.

## M. Self-Locking Carton Company Upper Dam

The canal dike is in satisfactory condition. The spillway was operating at the time of inspection. Both the dike and the spillway were noted to be o.k.

The main dam was in very good condition. No flashboards were on the crest and water was overflowing this spillway dam.

Both abutments were in excellent condition. The gunite is well maintained and is standing up satisfactorily.

There is hardly any evidence of wear on the masonry of the dam.

The left stone filled dike between the left side of the dam and the railroad tracks is satisfactory. Seepage through this fill and under the left abutment as observed in previous years, seems to be somewhat lower this year.

In the opinion of the undersigned, the dam and all its related facilities are in very good condition, and the structures safe.

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N. Self-Locking Carton Company Lower Dam

The left wall at the canal spillway is eroding on top, but the erosion is not deep enough as yet to require any repairs. The spillway itself was noted to be in fair condition.

The canal dike has been cleared of all brush growth and the rock paved sloping surfaces on both sides of the dike, were noted to be in good condition.

The right abutment fill and the grouted slope paving as well as the wall adjacent to the gatehouse were all noted to be o.k. and repairs as needed and reported last year have been made.

The dam itself is o.k. No flashboards were on the crest and water level in storage was noted to be about 1 foot below the elevation of the masonry crest. The crest itself is eroded somewhat but the depth of erosion into the concrete is minor.

There was no evidence of any leakage at the face of the dam. The toe of the dam in the stream was o.k. Since no water was overflowing the dam, a good inspection of the masonry was able to be made.

The left abutment stone masonry was observed to be in good condition.

In the opinion of the undersigned, the dam and canal facilities are being satisfactorily maintained and the dam is safe.

O. Sasur Dam

This is a dam formed by the town road leading to Ludlow. The mass of the road is very large and the width of the embankment is thus great in relation to the vertical height.

The intake structure of this small pond was o.k. It was relatively free of debris at the crest and water level in storage was at the normal spillway crest elevation. Debris down in the intake at the culvert entrance should be removed.



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In the opinion of the undersigned, the dam is safe.

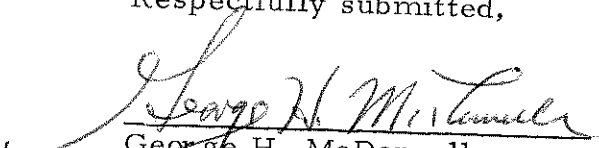
P. Lizak Dam

This dam also known as the Campers Country Club Dam is still breached at the spillway as directed. Very little water is stored. The spillway as existing can adequately pass anticipated flood flows.

There was no sign of any activity in the area adjacent to the dam. The area at the dam and around the small pond appears to be abandoned and there is no evidence of any maintenance being done. The embankment is still in rough shape and no loam or seed has ever been placed on the surface.

Apparently the owner has not as yet decided whether he will further develop the area or abandon the work altogether. He was advised in writing that plans and specifications for a proper dam must be filed with your Board before any water can be stored over and above that now stored by the purposely breached and cut down spillway.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/al

Russell Dam Inspections - 1957- 1969



1957 Reports

Inspections by Tighe & Bond.

City/Town	Russell
Dam	Strathmore Paper Company Dam - 1950
Dam	Strathmore Paper Company Dam - 1938
Dam	Strathmore Paper Company Potash Brook Dam
Dam	Westfield River Paper Company Dam
Dam	Strathmore Paper Company Dike
Dam	Russell Water Works Dam
Dam	Chapin Gould Dam
Dam	Russell Pond Dam
Dam	Texon Dam
Water	Potash Brook
Water	Russell Pond
Water	Westfield River

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
**BOWERS AND PEQUOT STREETS**  
**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**

**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

CD Russell

Jan. 31, 1957.

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Massachusetts

Gentlemen:

Inspections carried on in the Town of Russell during the year 1956 have resulted in all dams in that community having been examined one or more times during the year. The following is a report on the condition of the various dams situated in Russell.

A. Russell Water Works Dam. This is a masonry dam situated on Black Brook just westerly of the central portion of the Town of Russell. The dam impounds a small reservoir used for the purpose of supplying the built-up portion of the community with water. In the flood of August 1955, the dam was topped by about 2 ft. of water. No damage was done to the dam itself. The dam had been repaired and certain maintenance had been completed a few years ago. Following the flood, the dam was in very good condition. However, the pond itself had been partially filled with sand and gravel washed down from the valley above by the flood flow. When last inspected, the dam was found to be in excellent condition. The flood-washed-in gravel has been cleared out of the Reservoir and the basin is now at normal capacity.

B. Russell Pond Dam. This is a shallow earth and masonry dam situated on Russell Pond just westerly of General Knox Road. The dam is on Pond Brook upstream from the Woronoco portion of Russell. The pond formed by the dam is a natural pond that has been raised by the small dam. The pond is used for recreational purposes and at one time it was used for manufacturing purposes. Just downstream from the dam is the road fill of the General Knox Road. For many years the dam has been somewhat dilapidated and various reports have been submitted regarding its condition. At no time has the condition of the dam been dangerous to persons and property downstream. In the flood of August 1955, some damage was done at the dam. However, the major damage occurred at the roadway where the road fill was washed away around the culvert. This road has been rebuilt and the fill has been increased in size and a new culvert installed to carry the flow of the brook

under the road after it has passed over the spillway of the dam. The top of the newly built road embankment is about 12 ft. above the dam. Two 5 ft. diameter concrete culverts form the new conduits to carry the water under and across the road fill. The dam structure itself is still in relatively poor condition. Though dilapidated and in need of repairs, the structure does not present a threat to persons and property downstream. It would be advisable to notify the owners of the poor condition of the dam and spillway and suggest that certain maintenance and repairs be done at this time.

C. Strathmore Paper Co. Potash Brook Dam. This was a small masonry dam situated on Potash Brook just southerly of Blandford Road, Highway Rte 23, westerly of the built-up portion of Woronoco. This dam formed a small pond that provided water for use at Woronoco and the paper mill. This dam was topped by about 7 ft. of water over its crest during the flood of August 1955. The pond volume behind the dam was completely filled with gravel and sand washed down from the valley above. The earth-dike portion of the structure was completely washed away, including the road of Highway Route 23. This dam has now been rebuilt and is in good condition. It has been rebuilt as a combination earth fill and stone masonry structure. When last inspected, its condition was excellent.

D. Strathmore Paper Co. Dam (1938 Structure) This is a masonry dam built upstream from the Strathmore Paper Company plant on the Westfield River in Woronoco. It impounds a relatively large pond of water for use in operation of the paper mill. This dam withstood the flood of August 1955, without any damage occurring to the structure. When last inspected, this dam was in excellent condition.

E. Strathmore Paper Co. Dam (1950 Structure) This is a concrete masonry dam built across the Westfield River upstream of the Strathmore Paper Company in Woronoco section of Russell. This dam functions in conjunction with the above described dam and was built to replace an old timber crib dam that existed at this site prior to 1950. The timber crib dam was in a state of disintegration and the new dam was built to replace the old structure. In the flood of August 1955, no damage occurred at this new masonry dam. When last inspected, the dam was found to be in excellent condition.


F. Strathmore Paper Company Dike. This is an earthen dike built in conjunction with the dam described in D above and contains the pond upstream of the dam in time of high water in the Westfield River. The dike was built to block a breach formed in the valley of the River during the great flood of the 30's. This dike suffered no damage as a result of the flood of August 1955, and when last inspected the dike was found to be in excellent condition.

G. Texon, Inc. Dam, (formerly Chapin Gould) This is a stone masonry structure of relatively heavy sections built across the Westfield River just downstream from the Huntington-Russell town line. The dam forms a pond used in the process of manufacturing at the Texon mill. The dam has a full spillway crest the entire width of the structure. No damage occurred at this dam during the flood of August 1955. When last inspected the dam was found to be in very good condition. Flashboards 24-inches in height were in place on the dam.

H. Westfield River Paper Co. Dam. This is a masonry structure extending across the Westfield River at a point near the built-up portion of Russell Center and used in connection with the operation of the Westfield River Paper Company plant. During the flood of August 1955, about 8 ft. of water flowed over the crest of the structure, topping the whole dam and abutment sections. The right abutment wingwall was found to be undercut slightly. This has been a condition that has been noted previously and still is not serious. No damage of consequence occurred at this structure as a result of the flood of August 1955. When last inspected in Dec. 1956, this dam was found to be in satisfactory condition. There is evidence that erosion noticed in the past is increasing at a normal rate, but this erosion has not caused the loss of enough material to require repairs as of this time. This condition is noted and will be checked each year.

There are seven (7) dams and one(1) major dike in Russell. Only one dam was washed out by the flood of August 1955. This was the small Strathmore Paper Company dam on Potash Brook. This structure has been rebuilt.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
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**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**  
**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

CD Russell

Dec. 27, 1957

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

Gentlemen:

Inspections carried on in the Town of Russell during the year 1957 have resulted in all dams in that community having been examined one or more times during the year. The following is a report on the condition of the various dams situated in the Town of Russell.

A. Russell Water Works Dam

This dam was found to be in very good condition.

B. Russell Pond Dam

The spillway at this dam has been improved by the construction of a paved concrete overflow at the location of the original overflow. The concrete work has been done in a workmanlike manner and provides a good overflow for the dam. The overflow is small considering the drainage area involved. However, the dam is so constructed that in time of extreme storm water can safely pass over the entire length of the structure. The dam is low in height and quite broad in width.

Immediately downstream of the dam the General Knox Road has been raised in grade and two large culvert pipes, 5 feet in diameter, have been laid thru this fill. These culvert pipes are in addition to the original culvert under the road. Any failure of Russell Pond Dam would not release stored water other than the quantity that could pass thru the three openings under the high fill of General Knox Road. Russell Pond Dam is in good condition and thus satisfactory for 1957.

C. Strathmore Paper Co. Potash Brook Dam

Protective work is needed at this dam near the left end and below the stone masonry wall. Water overflowing this wall washes away the earth and fill adjacent to the left abutment of the main dam. It is possible that this abutment could be undermined and thus cause a failure of the dam. Very heavy riprap fill should be placed in front of the stone masonry wall and adjacent to the left abutment of the main dam. The surface of this heavy fill should be graded with a gentle slope so that flood water will not move the heavy riprap. A paved masonry chute would be better than the riprap if properly constructed.

D. Strathmore Paper Co. Dam (1938 Structure)

This dam was found to be in good condition and no flashboards were on the crest.

E. Strathmore Paper Co. Dam (1950 Structure)

This dam was found to be in good condition and no flashboards were on the crest.

F. Strathmore Paper Co. Dike

The dike is in very good condition and has been well brushed so that a good inspection of the entire structure was easily made.

G. Texon, Inc. Dam (formerly Chapin Gould)

This dam is in good condition. Flashboards in place on the dam appear to be about 24" in height. In some locations a lower portion of the flashboards are concreted in place. Also, tie wires help hold back the flashboard pins from failing. The design for these flashboard pins and tie wires should be submitted by the owner of the dam so that the flashboard installation can be thoroughly reviewed to be certain the flashboards will fail in time of high rates of runoff.


H. Westfield River Paper Co. Dam

Repairs should be made to the disintegrating concrete at the right end of the dam. On the right section of the spillway the concrete is spalled and weathered. The dam should be repaired at construction joint locations



where overflowing water is eating into the construction joints. It was noted that no flashboards were in place on this dam.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

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GEORGE H. McDONNELL  
PHILIP W. SHERIDAN

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

CD Russell

August 22, 1958

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections carried on in the Town of Russell so far during the year 1958 have resulted in all dams in that community being inspected at least once. The following is a report on the condition of the various dams situated in the Town of Russell.

A. Russell Water Works Dam

This dam was found to be in good condition.

B. Russell Pond Dam

Flashboards were in place on the spillway of this dam. The dam in general seems to be in satisfactory condition. Though the spillway is small in capacity, the dam is so constructed and is so low in height that it can safely pass extreme flood flows over its entire length.

On the dam and immediately downstream of the dam are logs, drums and miscellaneous debris. These materials should be removed and disposed of. Flood flows could wash them against the culverts under General Knox Road and thus might endanger the Road should it act as a dam to form a large pond.

C. Strathmore Paper Co. Potash Brook Dam

There is some leakage thru the masonry of the main dam. Heavy rock fill has been placed below the new masonry wall constructed following the flood of August, 1955. This fill should be extended downstream and should be graded on a gentle slope to a point on line with the face of the main dam.

D. Strathmore Paper Co. Dam (1938 Structure)

This dam was found to be in good condition. When last inspected no flashboards were on the crest.

E. Strathmore Paper Co. Dam (1950 Structure)

This dam was found to be in good condition. When last inspected no flashboards were on the crest.

F. Strathmore Paper Co. Dike

This dike is in very good condition. Brush is again growing on the dike. Inspection of the dike will be difficult in 1959 unless all vegetation, including tree growth on the sides of the dike and the toes of the dike, are removed.


G. Texon, Inc. Dam (formerly Chapin Gould)

This dam was found to be in good condition. Flashboards were in place on the dam and they are in keeping with the flashboard design submitted by the company. There is evidence that the flashboards function satisfactorily for some of the boards have been washed out during high river flows in the spring of this year.

H. Westfield Paper Co. Dam

When last inspected, it was noted that flashboards were in place on the right 1/3 portion of the dam. No repair work has been done to date on the weathered concrete at the right abutment or on the dam itself. The dam should be repaired, particularly at construction joint locations where overflowing water is eating into the construction joints themselves.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. M. DONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

CD Russell  
Oct. 7, 1959

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections carried on within the Town of Russell during the present year have resulted in all dams in that community being inspected at least once. The following is a report on the general condition of the various dams situated within Russell.

A. Russell Water Works Dam

The spillway and the dam itself were both found to be in good condition.

B. Russell Pond Dam

At the time of the last inspection on Sept. 30, 1959, the flashboards were still in place on the spillway. These flashboards should be removed in advance of the fall rains and remain off of the structure until after the spring rainy season. The spillway was found plugged in part with logs, debris, and the remains of a boat. The spillway channel should be completely cleaned and cleared of these miscellaneous items to prevent them from being washed downstream and possibly plugging the culvert under the highway. The side culverts thru the roadway should not be depended upon to handle major storm flows. All three culverts should be protected and conditions maintained so that normal flow from the spillway can pass thru the culvert under the road directly ahead of the spillway and surplus flow pass thru the two auxiliary culverts.

C. Strathmore Paper Co. Potash Brook Dam

Some leakage occurs thru the masonry of the main dam. This leakage is not serious from a safety viewpoint. Stone fill placed in front of the wall built following the flood of August, 1955, should be extended downstream a sufficient distance to protect the foundation of the side spillway wall at the main dam. This stone fill need not be carried vertically to

a very high elevation. It need only be placed high enough to protect the foundation of the side spillway wall.

D. Strathmore Paper Co. Dam (1938 Structure)

This dam was found to be in good condition. No flashboards were on the crest.

E. Strathmore Paper Co. Dam (1950 Structure)

This dam was found to be in very good condition. No flashboards were in place on the crest.

F. Strathmore Paper Co. Dike

The dike was found to be in good condition. Brush and tree growth has been kept down and there was evidence at the time of the last inspection the larger trees near the toe of the dike were also being removed.

G. Texon, Inc. Dam (formerly Chapin Gould)

This dam was found to be in good condition. Flashboards were in place on the dam. The condition of the dam was discussed with the maintenance man at the Mill. He pointed out that each spring the flashboards are taken out by the flood water and replaced following spring runoff. No sign of any leakage was noted thru the face of the dam and only a small amount of weathering on the surface of the concrete was noticed at a few locations.

H. Westfield Paper Co. Dam

This dam is in fairly good condition, All eroded construction joints on the right third of the spillway have been filled with a concrete grout during the past year. Flashboards were found to be in place only on the right one third of the crest of the dam.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Russell  
Oct. 10, 1960

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm St.  
Springfield, Mass.

Gentlemen:

Inspections carried on within the Town of Russell during the year 1960 have resulted in all dams in that community being inspected at least once this year. The following is a report on the general condition of the various dams situated within the Town of Russell:

- A. Russell Water Works Dam The masonry at this dam was found to be in good condition. In another year or two there may be a condition of undermining at the foundation ledge on the right side of the brook just downstream of about the centerline of the dam spillway. As of now, the condition is satisfactory, but it would appear as if undermining of the ledge by overflowing flood waters may exaggerate the condition to a point where corrective action might be necessary. This condition will be reported on from year to year and a definite recommendation for repairs will be made when it is felt that such repairs become a necessity.
- B. Russell Pond Dam The spillway at this dam was found to be in good condition. It was clear of all debris and the dam embankment itself was in satisfactory condition. Tubes under the highway carrying the flow of the stream were OK. The dam embankment and the spillway were found to be in the best condition noted in many years.
- C. Strathmore Paper Co. Potash Brook Dam The main and original portions of the masonry dam were found to be in satisfactory condition. Heavy runoff from recent storms, particularly the hurricane storm of Sept. 12, caused water to flow over the emergency spillway built following the flood of 1955. Downstream of this spillway section and to the left of the abutment of the main dam, fill has been washed out to a considerable extent. A continuation of this washout

by future storms and a repetition of previous washouts, even though the fill be replaced, could endanger the left abutment of the main dam. Fill placed in the washed-out area should be very heavy boulders and the fill should be so placed and graded as to provide for an overflow channel to convey the water beyond the left abutment of the main spillway. Repairs of this nature would undoubtedly be far more permanent than the earth and rock fill previously installed.

D. Strathmore Paper Co. Dam - 1938 Structure This dam was found to be in good condition. No flashboards were on the crest at the time of the last inspection.

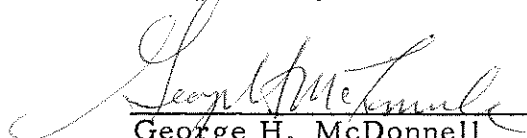
E. Strathmore Paper Co. Dam - 1950 Structure This dam was also found to be in good condition and no flashboards were on the crest at the time of the last inspection.

F. Strathmore Paper Co. Dike The dike itself was found to be in good condition and well shaped. Brush has been kept cut down except at the point where the dike joins the dam left abutment. Here at the toe the tree and brush growth is quite thick. It should be cut down so that the area is accessible for inspection and maintenance by personnel of the owner as well as by the undersigned. The area referred to is generally at the left abutment of the 1938 dam and in the vicinity of the old and now rotting plank walkway leading from the upper portion of the dike to the toe of that embankment.

G. Texon, Inc. Dam This dam was found to be in good condition. About 18" of water was overflowing the flashboards at the time of the last inspection. The flashboards were in place and seemed to be satisfactory. The dam abutments were in good condition. The concrete spillway, though spalled in places, is in no worse condition than noted in previous years.

H. Westfield River Paper Co. Dam Flashboards are on the dam and at the time of the last inspection water was overflowing along the entire crest of the structure. The right abutment of the dam, particularly as viewed from the downstream side, shows the need for masonry repairs. If these repairs are done in the near future--that is, in 1961 at the latest--further damage and loss of concrete can be arrested at little cost. Failure to take corrective action now may result in more expensive repairs at a later date.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Russell  
July 21, 1961

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on within the Town of Russell during the present year have resulted in all dams in that community being inspected at least once in 1961. The following is a report on the general condition of the various dams situated within Russell:

A. Russell Water Works Dam

The masonry dam and the spillway were both found to be in very good condition. The pothole at about the centerline of the toe of the dam still has not been eroded deep enough, nor extended far enough, to cause loss of support to the ledge at the right side of the dam. This condition is being watched annually to be certain that the foundation of the dam is not undermined, due to water erosion action. Based upon conditions noted at the last inspection, the dam as a whole is in good condition.

B. Russell Pond Dam

Flashboards were found on the spillway to the level of the top of the spillway notch. However, the condition as existing at the time of the last inspection is not dangerous since overflow from any heavy storm can pass over the entire length of the masonry wall of the dam, as well as around the ends of the dam on natural earth, without causing any washout. Also, immediately downstream from the dam there exists the large and high embankment of the highway and drainage tubes to carry the water under the highway. Thus, any loss at the dam would do no damage downstream since the highway embankment would hold back any flood flow other than that to be discharged by the culverts thru the highway embankment. As noted at the time of the last inspection, conditions at this dam were good.

C. Strathmore Paper Co., Potash Brook Dam

The main dam and spillway are in good condition. A few small leaks were noted in the masonry of the main dam but these have existed for some time and are not serious in nature. The washed out fill to the left of the left abutment should be replaced with heavy boulders to protect the end of the main dam from flood flow. Some heavy fill has been placed in this area but the fill should be extended further downstream and sloped off in a proper manner to allow for the safe passage of flood flow around the end of the main dam.

D. Strathmore Paper Co. Dam-1938 Structure

This dam was found to be in relatively good condition. No flashboards were found on the crest of the dam at this time. The masonry is showing signs of age and some of the vertical joints in the masonry of the dam are leaking at elevation just below the crest. Repairs to these leaking vertical joints at an early date could prevent the need for more serious and expensive repairs later on.

E. Strathmore Paper Co. Dam -1950 Structure

This dam was found to be in excellent condition. No water was passing over the dam at the time of the last inspection and no flashboards were on the dam. As the result of the low flow in the river it was possible to get out onto the dam and make a detailed inspection of the entire structure. The canal headwork was found to be in satisfactory condition, though the concrete does show signs of wear and water erosion. Repairs are not needed now but may be needed in a few years.

F. Strathmore Paper Co. Dike

The dike was found to be in very good condition and was well shaped. It was reasonably clear of all brush and tree growth. Tree growth was found to be rather thick at the downstream toe near the left abutment of the 1938 dam. In this area little or no seepage was noted.

G. Texon, Inc. Dam

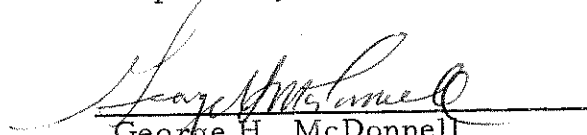
This structure was found to be in good condition. The masonry

above the deep pothole just downstream of this dam was inspected carefully and found to be in good shape. The dam appears to be satisfactorily supported in spite of this deep pothole formation. Flashboards were in place on the crest of the dam and they appeared to be relatively new. As existing at the time of the last inspection, conditions at this dam were satisfactory.

H. Westfield River Paper Co. Dam

This dam was in the same general condition as noted when inspected last year. The concrete masonry needs some attention and maintenance but, the work is not an absolute necessity. However, repairs done in the near future might prevent more expensive repairs at a later date. No water was flowing over this dam at the time of the last inspection and the undersigned was able to walk the entire length of the crest of the dam and thus inspect it in detail from one side of the river to the other.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Russell  
Nov. 20, 1962

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on within the Town of Russell during the past year have resulted in all dams in that community now being inspected at least once in 1962. The following is a report on the general condition of the various dams situated within Russell:

A. Russell Water Works Dam

This dam was found to be in satisfactory condition when inspected. Some of the gunite is spalling but this action has just begun and is of no importance at the present time. The pot-hole underneath the rock foundation to the right of the dam is no worse than noted previously. The masonry structure is in very good condition. The water level was just at the spillway crest when the dam was checked.

B. Russell Pond Dam

This dam was in the same general condition as reported a year ago. Flashboards were in the spillway notch and the top of the flashboards was about equal to the elevation of the top of the notch. However, this condition does not endanger the dam since the embankment is quite dense, very shallow and quite wide. The entire dam acts as a spillway in time of heavy flow conditions. Immediately downstream thereof is the large roadway embankment with the culvert tubes thru the fill. These would act as a control should the dam ever fail to prevent the discharge of the entire pond at a rate greater than the capacity of the culverts themselves. At the time of the inspection, the water level in storage was about 3 ft. below the crest of the spillway. The dam was considered safe when inspected.

C. Strathmore Paper Co. Potash Brook Dam

The masonry of this dam was found to be in satisfactory condition. Water was discharging over the spillway and flashboards were in place to the normal elevation. The area to the left of the dam that had been washed out in flash heavy runoff of the past has been completely filled in and graded off. Recommendations had been made last year that this location be filled with heavy stone. It is difficult to tell whether the material was heavy stone, since the surface of the ground is now graded and covered over with a clay-like loam. The dam was considered safe when checked. The walk-way out over the dam, used for access and inspection purposes, was in good condition.

D. Strathmore Paper Co. Dam - 1938 Structure

This dam was found to be in very good condition when inspected. It was checked during the Summer when water was low and again during the Fall, with water passing over the spillway. The dam was considered safe.

E. Strathmore Paper Co. Dam - 1950 Structure

This dam was found to be in very good condition when inspected. It was checked during the Summer when water was low and again during the Fall with water passing over the spillway. The dam was considered safe.

F. Strathmore Paper Co. Dike

The dike was inspected in the late Spring and again in the Fall. It was noted to be in very good condition, well shaped and clear of major brush and tree growth. Downstream of the dike and below the 1938 dam, the stream bed has been cleared, shaped and greatly improved. This improvement swings around the entire left side of the valley to provide a good, clean and well graded discharge area for water passing over the dam.


G. Texon, Inc. Dam

This dam was found to be in good condition when checked. Four flashboards were in place on the crest to the height as normally noted during each annual inspection. About 6" of water passed over the top of the flashboards on the last day of inspection, November 12. The abutment areas were found to be good and the dam was considered safe when inspected.

H. Westfield River Paper Co. Dam

This dam was found to be in satisfactory condition when checked. The spalling and eroding concrete at the right end of the dam, reported in recent years has been repaired. Missing concrete has been replaced and a large portion of the masonry structure has been improved by the application of gunite and cement grout. Work of repairing the masonry was being carried on during the past Summer, at a time when water flow was low and the dam could be maintained dry. The entire dam was walked, checked over and given a thorough inspection. It was noted to be in very good condition. At the time of the last inspection, on November 12, it was noted that the entire dam was passing water with the exception of the central portion, that is at a higher elevation than the top of the flashboards used on both the left and right sections of the structure.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

***CONSULTING ENGINEERS***

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Russell  
Oct. 17, 1963

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on throughout the Town of Russell during this year have resulted in all dams in that community now being inspected at least once during 1963. The following is a report on the general condition of the various dams situated within Russell.

A. Russell Water Works Dam

This dam was found to be in satisfactory condition. The masonry of the structure was good. The void or pothole underneath the rock foundation to the right of the dam is in the same general condition as noted in previous years and its existence presents no danger to the structure. Immediately downstream from the dam, in the bed of the brook, there is a fairly large deposit of gravel and it would appear as if the reservoir bottom may have been cleaned during the past year. At the time of the inspection, on October 2, the water level in storage was at the crest of the masonry dam and no flashboards were on the structure.

B. Russell Pond Dam

This dam was found to be in good condition at the time of inspection. Water level in storage was down about 2 ft. below the spillway crest. Culvert tubes thru the highway just downstream of the dam were clean and clear of any debris. Flashboards were on the spillway. The concrete structure forming the spillway was in good condition. The dam appeared to be well maintained.



C. Strathmore Paper Co. Potash Brook Dam

This dam was found to be in satisfactory condition and the masonry was good. The stone fill at the left of the dam in line with the emergency overflow wall was OK. Water in storage was at the crest of the spillway on the day of inspection.

D. Strathmore Paper Co. Dam - 1938 Structure

This dam was in very good condition. At the time of inspection on October 9, it was noted that water level in the pond formed by the dam was about 12" below the crest of the overflow. No flashboards were on the dam. The river bed downstream of the dam was dry and it was possible to walk the entire length of the toe of the masonry dam for a complete and careful inspection. The structure was found to be in good condition along its entire length and abutment areas were good. There is some spalling and erosion of the surface of the concrete but the worst of this condition has been recently patched with grout. No cracks were noted in the dam other than the construction joints.

E. Strathmore Paper Co Dam - 1950 Structure

This dam was found to be in very good condition. Because of the dry stream bed, it was possible to also walk the toe of this dam and to get out on the structure for a close examination. The concrete was in good condition and the toe area of the dam was excellent. Abutment areas and the central island separating the 1950 dam from the 1938 dam were satisfactory. The only sign of wear and erosion on this dam was in the second section of the masonry from the right abutment and about one-third of the distance up from the toe of the masonry overflow structure. The erosion is very slight and is of no concern at the present time. No flashboards were on the dam at the time of inspection.

F. Strathmore Paper Co. Dike

The dike was found to be well shaped and had been cleared of most brush growth. No toe seepage was noted along the dike except near the point where the dike joins the left abutment of the 1938 dam. Here the toe seepage is concentrated and is about the same as noted for many years. Seepage emerges as clear water from the rock fill toe of the dike. The seepage either is flowing directly under the dike adjacent to the abutment or comes thru the foundation rock under the abutment itself.

While walking the stream bed below the 1938 dam, it was noted that seepage enters the channel at a point about opposite the mid-point of the dike. This seepage comes from the ground at a point at least 100 ft. from the dike and is clear water. No doubt this entire area is a boulder and gravel material thru which water ponded by the two dams finds its way into the downstream river channel. For all practical purposes this seepage passes under the dike but thru the soil upon which the dike is constructed and thus seepage does not take place thru the dike itself. The condition is considered satisfactory and stability of the dike is not endangered by the underground flow of water.


G. Texon, Inc. Dam

This dam was found to be in very good condition. The masonry is well maintained. Four flashboards were in place on the crest of the dam and water was overflowing the flashboards on the day of inspection, October 2.

H. Westfield River Paper Co. Dam

This dam was found to be in good condition. The repairs made in the recent past are standing up well and there is little sign of any new erosion in the masonry. Water level in storage at the time of inspection was at the top of the flashboards. Flashboards were on the left, as well as the right sections of the dam.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

C D Russell  
September 30, 1964

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on throughout the Town of Russell during the year 1964 have resulted in all dams in that community being inspected at least once during the year. The following is a report on the general condition of the various dams situated within Russell.

## A. Russell Water Works Dam

This dam was in very good condition. The masonry is well maintained and the gunite that was applied some years ago is holding up well. The spillway was free and clear of any debris and no flashboards were on the crest. Water level in storage was down about 6" below the crest of the spillway on the day of inspection.

The void under the foundation ledge at the right toe of the dam has now been partly filled with gravel and debris dumped from reservoir cleaning operations. This debris will aid in slowing down any scouring action under the foundation rock. The toe area of the dam was okay.

## B. Russell Pond Dam

The earth section of this dam was in good condition. The culvert tubes downstream from the spillway and under the highway were clean and clear of any debris. The concrete masonry wall and the spillway structure itself were in good condition. The discharge end of the spillway and the channel to the lower of the two culverts were okay. No undercutting of the end of the spillway was noted. Flashboards were on the spillway crest to an elevation equal to the top of the concrete sidewalls. Normally these flashboards are removed each Fall. Even if they are not removed, the dam will not be endangered since this structure could withstand overflow of water for its entire length without sustaining any serious damage.

C. Strathmore Paper Co. Potash Brook Dam

The main stone masonry dam with the concrete cap spillway extending for its entire length was found to be okay. Flashboards were in the spillway notch to the elevation of the concrete spillway cap that extends over the main portion of the dam. The right abutment was in good condition. Water level was at the crest of the flashboards in the spillway notch.

The left abutment of the main dam was in good condition. The area to the left of the dam and downstream of the concrete wall built following the flood of August 1955 has been completely filled in. Stone fill reported previously in this general area has now been nearly completely covered over with miscellaneous random fill of earth and medium to small size boulders. Flood flows that top the wall built following the flood of 1955 will wash over the filled area and no doubt will wash out the earth fill and small boulders that have been placed on top of the heavy underlying boulders. This condition will not endanger the dam but it will damage the graded and leveled off area. In the opinion of the undersigned, it is not necessary to notify the Owner of this condition since the Owner is well aware of the fact that storm conditions result in flow taking place over this emergency outlet from the pond.

D. Strathmore Paper Co. Dam - 1938 Structure

The masonry of this dam was found to be in very good condition. The toe area and the foundation rocks were solid and showed little or no sign of erosion or wear. No flashboards were on the crest of the dam and the water level in storage was down about 18" from the top of the spillway structure. Both abutment areas of this dam were in good condition.

E. Strathmore Paper Co. Dam - 1950 Structure

The masonry of this dam was in very good condition. There was very little spalling of the concrete masonry and what little spalling was reported previously has not extended nor deepened. The toe of the dam and the foundation ledge were in good condition. The left abutment at the central island was in good condition and the right abutment at the canal wall was also okay. No flashboards were on the dam and water level in storage was down about a foot and a half from the crest of the masonry spillway. The center gate structure was in good condition.

In regard to this dam and the 1938 structure herein before reported upon the undersigned is again able to make a close and detailed inspection. With no water overflowing either of the dams, it was possible to walk the river bed in front of the toe of each dam and to get out on each structure for a careful inspection.

F. Strathmore Paper Co. Dike

The dike was in good condition. It was found to be well shaped and relatively free of brush. The usual toe seepage was noted at about the point where the dike joins the left end of the 1938 dam. Also, in the stream bed downstream some distance from the dam, seepage that passes under the dike was observed. Both locations where seepage has occurred for years were watched for any sign of movement of soils particles. In neither location could any soil particles be seen moving and the water flowing was clear.

G. Texon, Inc. Dam

Four flashboards were on the crest of this dam as is the normal custom. Water level in storage was just about at the crest of the masonry part of the dam. Some spalling of the concrete on the crest and downstream face of the dam was noted and reinforcing rods are beginning to show thru the spalled concrete. The condition is not bad enough as yet to require repair but observations will be made in the future and when the spalling does get to a point where repairs would be advisable, a recommendation will be made in connection therewith.

The large pothole in the foundation rock downstream of the dam and at about the centerline of the dam has been eroded back under the dam masonry a bit but the erosion will progress very slowly and it will probably be a number of years before the erosion will be deep enough and the foundation will be undercut sufficiently to require protective measures being taken.

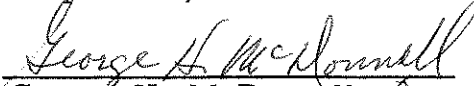
In the opinion of the undersigned, the dam was in satisfactory condition when inspected.

H. Westfield River Paper Co. Dam

This dam was found to be okay. The masonry was in good condition. The usual flashboards were on the left section and the right section of the dam. Both abutment areas were okay. The gatehouse forebay has been excavated of soil and debris and the spoil materials have been dumped downstream of the dam in front of the left one-quarter of the structure. The condition is okay and flood water will continue to wash the spoil material downstream and away from the dam. Water level in storage was at the elevation of the masonry crest of the dam.

GHM/cmb

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Russell  
November 19, 1965

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on throughout the Town of Russell during 1965 have resulted in all dams in that community being inspected at least once during the year. The following is a report on the general condition of the various dams in Russell.

A. Russell Water Works Dam

This dam was found to be in excellent condition. The gunite surfacing is standing up very well. Water level was at the crest of the spillway. No flashboards were on the spillway. Abutment areas were good. The toe of the dam was okay and the undercut ledge just downstream of the spillway toe is about the same as noted in the past. In the opinion of the undersigned, this dam is safe.

B. Russell Pond Dam

The earth embankment of this dam was found to be satisfactory. Concrete and stone masonry of the spillway and abutment areas were good. Flashboards were in the spillway notch and the top of the flashboards is the same elevation as the top of the spillway side walls. These flashboards are usually removed each Fall. Even though these flashboards are not removed, water can overflow the entire dam without endangering the structure.

Water level in storage was noted to be very low. It appeared to be at least 5 ft. below spillway crest elevation. The spillway tubes thru the downstream roadway embankment were okay and clear of debris. This dam was considered safe when inspected.

C. Strathmore Paper Co. Potash Brook Dam

The concrete cap and the cemented stone masonry forming this dam were found to be satisfactory. Flashboards were in the spillway notch to the usual elevation. Water level in storage was at the top of the flashboards. The earth fill to the left of the dam was found to be satisfactory and it was noted that the left concrete wall on the upstream face of this fill has been raised and improved so that better freeboard now exists at this location.

In the opinion of the undersigned, the dam was okay when checked.

D. Strathmore Paper Co. Dam - 1938 Structure

This dam was found to be in very good condition. The toe of the dam and the stream bed at the toe were both okay. The crest shows little sign of wear and erosion. No flashboards were on the crest and water level in storage was just below crest elevation. Abutment areas were found to be good. The surface of the concrete on the sloping face of the dam shows some evidence of erosion and spalling but this is minor.

The dam was considered safe when inspected.

E. Strathmore Paper Co. Dam - 1950 Structure

This dam was also found to be in very good condition. Some spalling and erosion of concrete was noted but the depth of wear is negligible. Abutment areas were okay. Water level was at the crest of the spillway and no flashboards were in place. The toe and foundation ledge in the bed of the stream were okay. The dam was considered safe when inspected.

F. Strathmore Paper Co. Dike

The dike was found to be okay. It is well shaped, has a good stable surface and was found to be clear of all brush growth.

G. Texon, Inc. Dam

This dam was found to be satisfactory. The usual four flashboards were on the crest and water level in storage was just below crest elevation. Some spalling and erosion of the masonry was noted at the right end of the dam for a distance of about 50 ft. out from the abutment. However, this wear of the masonry is not serious enough to require repair. In



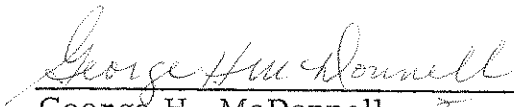
another year or two this part of the dam may need attention. The condition will be particularly noted at the next inspection.

No material change was noted in the bed of the stream or at the toe area of the dam.

H. Westfield River Paper Co. Dam

This concrete masonry dam was found to be satisfactory. The usual flashboards were in place and water level was down about 6" from the top of the boards. Abutment areas were good and the toe of the dam was satisfactory. Concrete is spalled and worn a bit in a few scattered locations along the dam but since the depth of spalling is shallow, repairs are not as yet necessary. The gatehouse area was found to be okay.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mbf

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD - Russell  
Nov. 20, 1967

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Mass.

Gentlemen:

Inspections carried on throughout the Town of Russell during the year 1967 have now resulted in all dams in that community having been inspected at least once during the present year. The following is a report on the general condition of the various dams within the Town of Russell.

## A. Russell Water Works Dam

This dam was found to be in good condition. At the time of the inspection, the reservoir was empty and the drawdown gate open. The bottom of the reservoir was being cleaned of leaves, humus, mud and debris. The wet side of the dam was fully exposed to view and an inspection of this face of the dam showed it to be in good condition. The gunite looked fairly good everywhere.

On the dry side of the dam, the face of the masonry was in good condition. There was some peeling of the gunite but this was of no importance.

The undercut stone and ledge located to the right of the dam and just at the toe is in about the same condition as noted in previous years.

No flashboards are in use on the crest of this dam. The structure was considered safe when inspected.

## B. Russell Pond Dam

The concrete masonry forming this dam was found to be in fair condition. On the day of inspection, the water level in storage was

about 12" below the concrete masonry spillway crest. Flashboards were on the crest. These should be removed until after the Spring run-off. Each year flashboards on the crest of the spillway of this dam should be taken off in the Fall and kept off until after the Spring thaw of the following year. The earth section of the dam was found to be in satisfactory condition.

The main culvert under the roadway immediately downstream of the dam could be plugged with logs, debris and barrels lying around on and just below the dam. All of this junk material should be cleaned up. Though this material does not endanger the dam proper, it does present an unkempt and dirty appearance in the area of the dam, besides providing the means with which the culvert under the highway could be plugged in time of heavy storm flow run-off.

The two auxiliary culverts at higher elevation provide a safety outlet for water should the main culvert be plugged. Since a portion of the shore area is well maintained, it would seem advisable that the entire area of the pond, and particularly the dam, be well kept and well maintained.

#### C. Strathmore Paper Co. Potash Brook Dam

This small concrete and stone masonry dam was found to be in satisfactory condition. Water level was at the crest of the stoplogs in the spillway notch. The entire front face of this masonry dam can act as an overflow spillway in time of flood flow conditions.

A new gatehouse and pipeline are under construction at the left abutment and sidewall of the dam. The gatehouse has been built directly against the left sidewall of the dam at a point just upstream from the left front corner of this dam. Construction carried on to date is entirely outside of the dam proper. Earth removed from the dry side of the left abutment sidewall has been replaced in part with mass concrete directly against the sidewall and on both sides of the new small concrete masonry gate structure.

It would appear as if a screen will be inserted into the central section of this small new gate structure and a hole will eventually be cut through the sidewall of the left abutment to allow for entry of water from the small pond into the gate structure and thence into the pipeline being laid toward the mill.

The new construction does not endanger the dam in any way. Work being done is not directly on the dam itself but on the left abutment

upstream of the dam proper. In the opinion of the undersigned, the dam was safe when checked.

D. Strathmore Paper Co. Dam - 1938 Structure

The concrete forming this dam is in fair to good condition. There is some erosion and wear on the surface but the condition is not bad. The crest of the dam was found to be okay and no flashboards were on the crest. Water level in storage was just below crest elevation. The toe area of the dam at the natural ledge in the bed of the stream was found to be satisfactory. The left abutment wall just to the left of the drawdown structure is showing some signs of spalling at about the middle of the exposed face. This is the beginning of spalling action on this wall and the condition will be watched at future inspections.

Hardly any water movement was noted at the toe of the dam and in the vicinity of the abutment wall. The dam was examined carefully along the face since no overflow of water was taking place. In the opinion of the undersigned, the dam is safe.

E. Strathmore Paper Co. Dam - 1950 Structure

The concrete masonry forming this dam was found to be okay. No flashboards were on the crest and water level in storage was just below crest elevation. Some erosion and wear of the concrete surface was noted, but the condition is no worse than observed previously. The toe area of the concrete and the rock ledge in the bed of the stream were okay. The masonry gate structure out in the dam was okay. Abutment concrete masonry walls were found satisfactory.

In the opinion of the undersigned, the dam is safe. No water movement was noted at the toe whatsoever.

F. Strathmore Paper Co. Dike

The dike was found to be okay. All brush growth had been cut. The dike was found to be well shaped. Side slopes show no sign of movement or need for maintenance. The toe area was good. Seepage at the toe just to the left of the 1938 dam is about the same as noted previously. No soil moves with the seepage water. Seepage has occurred under this dike since it was built nearly 30 years ago. Little or no change has ever been noted in the seepage water.

G. Texon, Inc. Dam

This dam was found to be okay. The usual four flashboards were in place on the crest. The boards appeared new and apparently have just been placed upon the dam. The crest has been grouted, particularly at the right end where the bottom board has been set into grout.

Spalling on the front face of the dam at the right 50 ft. is no worse than noted before. The rock ledge of the river and at the toe of the dam appears to be okay. Abutment areas of the dam were found to be satisfactory. On the day of inspection, water was overflowing the entire crest of the dam.

In the opinion of the undersigned, the dam is safe.


H. Westfield River Paper Co. Dam

All three sections of this dam were found to be satisfactory. Flashboards were on the left section and on the right section to the usual height. Water level was down about 4" from the top of the flashboards. The concrete forming this dam was in fair condition. The central section in the vicinity of the old power facilities was found to be satisfactory. Though the concrete is rough, this structure is solid and safe. The toe area of the dam was good at all three sections.

The abutment of the dam at the left of the structure in the vicinity of the gatehouse was okay. The concrete abutment wall at the right end of the dam was also found to be in satisfactory condition.

In the opinion of the undersigned, the dam is safe.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/f

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Russell  
September 22, 1969

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on recently within the Town of Russell have now resulted in all dams in that community having been inspected at least once during the present year. The following is a report on the general condition of the various dams situated within Russell.

A. Russell Water Works Dam

This dam was found to be o.k. The spillway crest was in good condition. It contained no debris and no flashboards were on the crest. Water in storage was at crest elevation. The toe of the dam was in satisfactory condition. The base ledge on which the spillway portion has been built and against which the toe has been constructed, is satisfactory.

The gunite face of the dam, though broken in various locations, is satisfactory. The abutment areas are in good condition.

This dam remains in good condition year after year. It is well maintained by the Russell Water Dept. In the opinion of the undersigned, the structure is safe.

B. Russell Pond Dam

The spillway at this structure is satisfactory though it is partly blocked by a huge stump. The stump is at the downstream end of the spillway. During high stream flow it will be washed into the brook and could plug the large culvert passing under the main highway. Should the culvert become blocked, the road would be endangered. Also, should the stump block the culvert, it may become wedged in the tube and be very difficult to remove. It is recommended that this stump be removed from the spillway and either hauled away from the site, or removed to a safe location above maximum high water.

The stoplog is still in the spillway. This should be removed from the spillway crest until after the spring flood flow of 1970.

Water level in storage was nearly up to the top of the stoplog in the spillway crest. Spillway masonry is in fair condition and does not as yet need any repairs.

There is additional debris located between the spillway and the main culvert under the roadway. All of this debris should be cleaned out and disposed of.

The owner of the dam should be directed to remove the hugh stump and the debris mentioned hereinbefore and the spillway stoplog should be taken off of the crest until after the spring flood flows of 1970.

C. Strathmore Paper Co. Potash Brook Dam

The owner plans to improve the dam and to greatly increase the spillway capacity. Inspections have been made at this dam during the year, both with the owner and with the engineer hired by the owner to design the improvements. Each time the drainage area experiences heavy runoff, the main spillway of the dam cannot satisfactorily pass the flood flows. As a result, the auxiliary spillway operates but this spillway does not have adequate capacity nor does it discharge onto a properly paved surface which can transfer the overflowing water downstream. The area below the auxiliary spillway has been filled in with boulders and earth in the past following each flood flow and each time the earth and boulders are washed away.

The new construction will provide greater spillway capacity both at the main spillway and the flood flow spillway. It will also provide a concrete and riprap chute and training wall to guide the water safely back to the stream below the dam.

The concrete masonry at the dam is still in about the same condition as previously reported. Water level in storage at the time of each inspection was at the crest of the stoplogs in the main spillway notch.

A new gatehouse has recently been constructed on the north wall gate structure.

The proposed improvements to this dam will result in a structure with greater safety and the ability to pass greater flood flows without damage to fill and stream bed adjacent to and immediately downstream of the dam. The owner has filed plans requesting approval of the drawings showing the proposed improvements and the undersigned submitted his report to your Board on September 16th.

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### D. Strathmore Paper Co. Dam - 1938 Structure

At the time of the inspection the water level in storage was just above the crest of the overflow dam and water was passing over the dam. No flashboards were on the crest. An inspection of the toe was made by closely examining this area thru and under the overflowing water. There is some minor concrete surface erosion on the downstream face of the overflow dam but the toe itself shows little evidence of erosion. The vertical construction joints show some opening and wear, but this is of a very minor nature. The crest is well shaped and shows no excessive wear.

The gate structure and the left concrete abutment were noted to be in very good condition. The right abutment consisting mainly of natural ledge and a small concrete wall was in good condition.

In the opinion of the undersigned, this dam is safe.

### E. Strathmore Paper Co. Dam - 1950 Structure

The concrete masonry forming this dam is in very good condition. Joints were o.k. The crest concrete is good and no flashboards are on the crest. Water level in storage was passing over the crest. The toe area was noted to be satisfactory. The gate structure out on the dam was o.k. Concrete abutment walls on each side and the natural abutment ledge were o.k.

In the opinion of the undersigned, this is a very good dam and it is safe.

### F. Strathmore Paper Co. Dike

The shape of the dike is satisfactory. However, it has not been maintained properly in that brush growth is becoming quite high and thick. All brush growth on the slopes should be kept cut down. The toe area appears to be good. Examination of the toe area was difficult because of the thick brush growth. Seepage at the toe, just to the left of the 1938 dam, seems to be about normal. No soil moves with the seepage water.

The owner should be advised to remove all brush growth and to keep the dike clear of this growth.

### G. Texon, Inc. Dam

This dam was noted to be in about the same condition as reported previously. The only change observed is that nearly one-half of the flashboards on the crest of the dam have been washed away apparently as a result of the many high rates of flow that have occurred in the river because of recent numerous hard showers and continued rain storms. Since the flashboards are designed to be washed out in time of high stream flow, the fact that about one-half of them were missing at the time of the most recent inspection indicates



# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

their design is proper and that they are functioning as planned.

The crest of the dam was noted to be o.k. Some erosion was observed on the downstream side of the crest concrete, but this erosion is not too serious as of the present time.

The amount of water stored by this dam is not large because of the fact that much of the stream volume above the dam has been filled in by sand, gravel, and boulders washed down from upstream.

The toe area of the dam, built upon the natural ledge of the stream, appeared to be o.k. It was difficult to examine the toe since the flow over the dam was heavy.

Abutment areas of the dam were found to be satisfactory. In the opinion of the undersigned, this dam is safe.

### **H. Westfield River Paper Co. Dam**

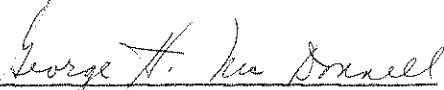
This dam was found to be in satisfactory condition. Flashboards were observed to be on the right and the left sections of this dam. Water level was at the crest of the flashboards on these two sections and also at the elevation of the permanent crest in the middle section which never contains flashboards. The toe area of the dam appeared to be satisfactory. It was difficult to examine the toe because of the amount of water overflowing the dam.

Some toe erosion of concrete at the center section and also on the crest area, was noted. However, this erosion appears to be minor in nature.

Abutment areas were satisfactory. The end of the wingwall at the right abutment is rough and worn but again, this condition is minor and of no importance.

In the opinion of the undersigned, the dam is safe.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

Southwick - Congamond Lakes Outlet Study



1956 Reports

Massachusetts Comm Waterways - Report on New Outlet for Congamond Lakes - Southwick - 1956

City/Town	Southwick
City/Town	Southwick
Name	Massachusetts Comm Waterways
Streets	Point Grove Road
Water	Congamond Lakes
Water	Great Pond

F. M. GUNBY  
W. P. UHL  
W. M. HALL  
R. W. LOGAN  
M. JACOBS  
G. R. RICH  
R. T. COLBURN

CHAS. T. MAIN, INC.  
80 FEDERAL STREET  
BOSTON 10, MASS.

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317 SOUTH TRYON STREET  
CHARLOTTE, N. C.

May 8, 1956

167-73

Subject: Congamond Lakes  
Study of Outlet

Commonwealth of Massachusetts  
Department of Public Works  
Division of Waterways  
100 Nashua Street  
Boston, Massachusetts

Gentlemen:

We submit herewith a report on studies we have made relative to providing a new outlet for Congamond Lakes in Southwick, Mass. These studies were made pursuant to Contract No. 1566, dated Jan. 9, 1956, and received by us on March 6, 1956.

Briefly, we conclude that the lakes should be restored by construction of an earth dike plug in the north outlet, that the dike at the south end should be raised and strengthened, that the present outlet into Great Brook should be replaced with a larger and more substantial structure, and that the roadway forming the restraining dike at the Great Brook outlet should be raised. Our proposals are described as Alternative No. 1 of the report and are shown on Plate VI. The estimated cost is \$51,500.

Regarding the channel of Great Brook, we conclude that no major program of improvement is warranted at this time.

We believe that the report covers all points about which there might be any question. Please do not hesitate to call on us, however, should you feel that elaboration of any part is necessary.

Yours very truly,

CHAS. T. MAIN, INC.

By *C. C. Cullum*  
C. C. Cullum

CCC:j

REPORT ON  
STUDIES MADE RELATIVE TO PROVIDING  
A NEW OUTLET FOR CONGAMOND LAKES  
SOUTHWICK, MASS.

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## REPORT ON

### STUDIES MADE RELATIVE TO PROVIDING A NEW OUTLET FOR CONGAMOND LAKES SOUTHWICK, MASS.

1. GENERAL. - Congamond Lakes, in the town of Southwick, Mass., comprise three interconnected ponds having a total surface area of about 464 acres. The lakes lie approximately in a north and south direction, about three miles long and up to one-third of a mile wide. The eastern shore forms, generally, the State boundary of the Massachusetts panhandle into Connecticut. The lakes were at one time part of the Hampshire & Hamden Canal, with entrances at the extreme north and south ends. Upon abandonment of the canal, these outlets were plugged with earth dikes.

The natural outlet of the lakes, called Great Brook, emerges westward from the southern end of the middle pond, flows generally northward, circles around the north end of the lakes and discharges about 5 miles northeastward into the Westfield River. The channel is restricted in several places by culverts. The present outlet from the lakes is a severe restriction, consisting only of a 36" x 58" corrugated iron culvert. A considerable drainage area feeds the brook from the westward and it is this area that contributes to flooding of the channel rather than any outflow from the lakes.

During the hurricane storm of August 18-19, 1955, there were two separate occurrences, both related to the storm but having little relation to each other, which caused property damage in the area.

First, during the height of the storm, the channel of Great Brook became gorged with water and flooded to a varying degree some six establishments - 4 private dwellings (one destroyed), a convalescent home and a filling station - along its banks and a tributary brook. The lake thus formed finally broke through the railroad fill which formed the dam and was relieved. There was some damage to highway culverts and fills where these were overtopped.

Second, the Lakes, as is usual, continued to rise after the rainfall had ceased. Some six hours after the run-off producing rain had stopped, water began overtopping the plug in the north outlet. Efforts to stop this were not successful and about nine hours later the entire north pond went out, cutting an immense gorge out to the channel of Great Brook. The highway culvert connecting Middle Pond and North Pond was sealed off so that only North Pond was drained.

2. SCOPE. - This report is principally concerned with measures for sealing off the lakes and providing means so that the outflow can be carried away in a safe and dependable manner. As a coordinate problem, a study was made of the inflows to Great Brook other than from

the Lakes, and of the carrying capacity of Great Brook Channel, both up to a point opposite the north end of the lakes. No study has been given to the channel between this latter point and the confluence with West-field River.

The storm of August 18-19, 1955 so greatly exceeded all previous records for the entire eastern part of the country that design of hydraulic structures in general for worse conditions is not considered either reasonable or economical. The storm is, therefore, taken as a criterion for the study. Whenever conditions during the August 1955 storm are described, it can be taken that they apply equally to the "design storm".

### 3. PROPOSED WORKS

(a) Great Brook Channel. - The following conditions obtain in Great Brook Channel during a flood comparable to that of Aug. 19, 1955. They are illustrated on a profile of the Channel, Plate II.

1. Flooding of the Channel is caused by insufficient culvert capacity.

2. The culvert under the N.Y., N.H., & H. Railroad tracks is the controlling restriction. This culvert is reported to have been partially obstructed by debris during the flood of August 1955 but the effect of the obstruction was apparently minor. The high railroad embankment effectively dammed the stream for a time and backed water over Point Grove Road to such a depth that the roadway culvert and embankment were a very minor obstruction.

3. The Point Grove Road culvert becomes a controlling restriction, if the railroad restriction is remedied. A storm equivalent to that of August 1955 would put water running about 2.5 feet deep over the roadway surface.

4. The channel of Great Brook, although overgrown, is sufficiently wide to cause no appreciable obstruction to flows level with Point Grove Road. Flows below this level should cause no damage.

5. During times of great storms, the conditions in Great Brook should be aggravated as little as possible by outflow from the Lakes. This has unquestionably been the past condition. The outlet has always been restricted to such an extent that the main part of the lake inflow has been stored and drawn off gradually.

Additional culvert area would be the only remedy for the above described conditions. There is ample channel room for a second culvert so that the present culverts could remain in place. The areas required are shown on Plate II.

(b) Outlet to Lakes. - The failure at North Pond, in the early morning of August 20, 1955 occurred after all of the surface run-off was in the lakes. The groundwater flow was still coming in strongly, however, so that the lakes were still rising, but the additional rise would have been insignificant. It is thus evident that very little additional free-board on the plug in the north end would have saved the disaster.



North Pond can be restored and an outlet constructed to carry off the floodwaters safely in one of two manners. Each has certain advantages and disadvantages.

(1) Alternative No. 1 (Plate VI) Reconstruct a plug in the north outlet. Reconstruct the present outlet to Great Brook and raise the roadway at the outlet (Berkshire Ave.) to form a safe dam. Raise and strengthen the dike at the south end.

This would restore the lakes to their previous condition, except that the restraining dikes would be higher and stronger. The outlet structure would be more substantial and considerably larger than the present corrugated iron culvert but it would still restrict the outflow to a nominal amount. The lakes would thus continue to have their historic function as a flood storage reservoir.

The disadvantage of this scheme is in the length of time required for the lakes to draw down after a major rise. Plate V illustrates the condition for a storm similar to that of August 1955. For a major rise in the early fall, the lakes would very likely be higher than normal until the summer of the next year.

(2) Alternative No. 2 (Plate VII) Construct a spillway in the North outlet with an improved channel to Great Brook. This would require an enlarged culvert under Longyard Road. It would also require an enlarged culvert under Point Grove Road in order to draw the flow from Middle and South Ponds into North Pond. The new outlet to Great Brook and the strengthened dike at the south end would be constructed the same as for Alternative No. 1.

The spillway at the north end would be set at normal lake level so that the ordinary flows would continue to go through Great Brook and only the overflow due to a rise in the Lakes would go out the north outlet.

The advantage of this scheme is in the speed with which the lakes drop to normal level after a rise. There would also be less rise in the lakes. Both of these would diminish the difficulties with flooded cellars and other similar nuisances around the shore of the lake. Plate V illustrates the pattern of rise and fall for a storm similar to that of August 1955. It will be noted that the spillway would decrease the maximum rise by 0.8 feet for such a storm.

The disadvantage of the scheme is in its cost. Also, it would add about 1,000 c.f.s. to the streams below approximately at the time of maximum flood.

4. CONCLUSIONS AND RECOMMENDATIONS. - Based on the study, the following conclusions and recommendations are made:

(a) Great Brook Channel. New culverts to alleviate property damage due to flooding of Great Brook Channel, as shown on Plate II, are estimated to cost about \$119,000. The amount of property damage, as we have been informed of it, will not justify this expenditure. Nor would a materially lesser expenditure be of any material benefit. It is concluded, therefore, that no major program of improvement is warranted at this time.

The channel has not been investigated in detail to ascertain whether or not there are minor nuisances which could be abated by minor improvement.

(b) Lake Outlet. It is recommended that the Lakes be restored by construction of a plug in the north outlet; that the present outlet to Great Brook be improved and strengthened; and, that the dike at the south end be raised and strengthened; all substantially as outlined under Alternative No. 1 (Plate VI). It is estimated that this would cost about \$51,500 as compared with \$171,300 for an auxiliary spillway and its necessary appurtenances (Alternate No. 2, Plate VII).

Sufficient benefits are not apparent to warrant the extra costs for the more expensive scheme. Nor is it certain that added damages downstream would not offset any benefits the spillway scheme might offer the lake property.

(c) Lake Levels. At present the lakes are approximately at Elevation 225.3, U.S.G.S. Datum. The levels were reported to have been raised one to two feet during recent years when a bridge outlet to Great Brook was replaced by the present culvert outlet. There appears to be some dissatisfaction with the present levels among the adjacent property owners.

No reason is known for establishment of the lake level, except to the satisfaction of the property owners so that it is recommended that the local officials be allowed to decide the point. The question would be "whether the property owners prefer the lake levels as they now are, or whether they would like to have them lowered, say one foot, and thus have them approximately the same amount lower in case of flood.

Theoretically, the dike levels which have been shown on the drawings could be lowered if the lake levels are lowered. Such is not recommended, however, on account of the uncertainty of future changes.

5. DRAINAGE AREAS. - The following is a breakdown of the drainage area up to the N.Y., N.H. & H. Railroad Crossing of Great Brook just south of Southwick Station:



	<u>Sq. Mi.</u>	<u>Acres</u>
<u>WATER SURFACE</u>		
North Pond	.073	46.5
Middle Pond	.431	276.0
South Pond	.221	141.5

Total Water Surface (El.225)	.725	464
------------------------------	------	-----

LAND SURFACE (Directly into Lakes)

West Side of Lake	.862	552
East Side of Lake	2.618	1,675

Total Land Surface	3.480	2,227
--------------------	-------	-------

TOTAL DRAINAGE AREA INTO LAKES	4.205	2,691
--------------------------------	-------	-------

-----

DOWNSTREAM FROM LAKE OUTLET

Great Brook Proper	1.850	1,184
Johnson, Tuttle & Pearl Brooks	5.630	3,603
Brook thru Southwick Center	.786	504

TOTAL DOWNSTREAM FROM LAKE OUTLET	8.266	5,291
-----------------------------------	-------	-------

TOTAL DRAINAGE AREA UP TO R.R.CROSSING	12.471	7,982
--	--------	-------

The reservoir area at Elevation 230 is scaled from the U.S.G.S. Map as 640 acres. The Reservoir Volume Curve, Plate IV, was thus developed, assuming straight line areal variation between lake surface level and Elev. 230.

6. RAINFALL

(a) August 1955 Storm. - The site is very close to the point of maximum rainfall for the storm of August 18-19, 1955. Plate I shows cumulative rainfall graphs for nearby recording gages; Springfield, Mass., Norfolk, Conn., and Knightsville Dam, Mass. The following are the amounts recorded at nearby non-recording station, readings being taken in all cases at 8 A.M. on the day noted:

	<u>18</u>	<u>19</u>	<u>Total</u>
Westfield Sanatorium, Mass.	1.25"	18.15"	19.40"
Granville, Mass. (5 mi. northwest)	1.57"	16.81"	18.38"
Blandford, Mass. (14 mi. northwest)	2.00"	15.60"	17.60"
Torrington, Conn. (12 mi. south)	3.77"	9.52"	13.29"

An isohyetal map of the storm, prepared by the U. S. Weather Bureau indicates that about 18.0" fell in the vicinity of Congamond Lakes.

(b) Design Storm. The August 1955 storm greatly exceeded all records for the region. Meteorological conditions, even for a hurricane storm, were exceptional. A design storm with a total fall of 18.0" has therefore been taken, with distribution paralleling that of Aug. 18-19, 1955. Plate I shows a graph of the assumed distribution.

Assumption of a greater rainfall is not considered warranted for basic design. Freeboard will be allowed on all dikes and other similar structures, however, in order to give a reasonable factor of safety over and above the basic design.

#### 7. STORM RUN-OFF

(a) Inflow to Lakes. Inflow to the lakes may be considered to consist of groundwater inflow, direct fall on the lakes, surface run-off, and, for the August 1955 storm, inflow at the Great Brook outlet and over the south end dike.

The Congamond Lakes have only one small brook as a feeder. It thus appears that they are largely fed by subsurface springs. Under this condition, an exceptionally large percentage of a rainfall would reach the lakes as groundwater inflow and, due to the narrowness of the drainage basin, a large percentage of the groundwater would be released rapidly. This condition is confirmed by records for the August 1955 storm.

On account of the large proportion of water surface, the direct rainfall on the lakes is a significant factor. The equivalent rate of inflow is a direct function of the rate of fall and reaches the lakes, of course, without any lag in time.

Surface run-off from the design storm has been estimated by theoretical formulae, balancing the results as nearly as possible with the Aug. 1955 storm. For this, the only significant records are:

Maximum Elevation of Lakes      229.3

Time of failure (presumably at max. elev.) 1 A.M., Aug. 20, 1955.

During the Aug. 1955 storm, flow of Great Brook is reported to have been reversed for a time. Water in the channel reached a height about one foot greater than the highway at the outlet (Berkshire Ave.) and flowed over the highway into the lakes. This is confirmed by the elevation of a flood mark taken near Point Grove Road (see Plate II). The condition, however, could have occurred only at the peak of the flood, and could not have been of long duration.

A similar occurrence is reported at the south end dike. Here there is no record of the exact height or duration of the inflow. The lakes finally reached a height greater than the dike and there is evidence of outflow so that the duration of inflow must not have been great.

Neither of these latter two inflows was a major factor in the rise in the lakes.

A hydrograph of the design storm, following the above considerations, is shown on Plate III. The more or less arbitrary assumption was made that

groundwater inflow would be 200 c.f.s., or at the rate of 0.09"/hr., at the time the surface run-off is complete. At that time the total retention would be 8.6 inches, or 0.33" per hour of significant rainfall during the storm. The ground water is assumed to taper off in rate to 10 c.f.s. one week later. At that time the total retention would be 4.7 inches, or 0.15" per hour of significant rainfall.

From the above, assuming the Aug. 1955 storm to be similar, the following balance of inflow and outflow volume is made, up to the time of failure of North Pond.

#### TOTAL INFLOW - BY RAINFALL

Direct fall on Lake .....	7,870	hr.	sec.	ft.
Surface Run-off (7.60") .....	17,070	"	"	"
Groundwater Inflow (1.80") .....	4,060	"	"	"
Overflow from Great Brook .....	3,300	"	"	"
Overflow from South Dike .....	900	"	"	"
Total	33,200	hr.	sec.	ft.

#### TOTAL INFLOW - BY RISE IN LAKES & OUTFLOW

Storage in Lakes .....	28,000	hr.	sec.	ft.
Outflow, Great Brook before reversal	1,450	"	"	"
Outflow, Great Brook after reversal	1,550	"	"	"
Outflow, over South Dike .....	1,200	"	"	"
Outflow, Out North Channel .....	1,000	"	"	"
Total	33,200	hr.	sec.	ft.

The above amount of surface run-off gives an infiltration index of 0.50"/hr. which is not unreasonable. The distribution of this run-off was based on unit hydrograph of the several distinct areas.

(b) Inflow to Great Brook. Inflow to Great Brook up to the railroad crossing near Southwick Station can be broken down into the following components:

- Outflow from the Lakes
- Inflow from Johnson Brook (incl. Tuttle & Pearl Brooks)
- Inflow from brook through Southwick Center
- Inflow from remaining drainage area (Great Brook Proper)

It is desirable to remedy the condition allowing reversal of the flow of Great Brook into the lakes (except for what might back through the outlet culvert). On the other hand, it can be assumed that the lakes would be contributing a negligible amount to Great Brook flow during the peak of a major storm.



There are no available data from which the inflow into Great Brook during the Aug. 1955 storm can be computed with accuracy. The U. S. Geological Survey gives a peak flow of 3,610 c.f.s. from 19.3 sq. mi., the point of measurement evidently being downstream from the area under consideration. Just how this peak was affected by storage above the obstructions, or by failure of the obstructions, cannot now be evaluated.

Theoretical inflows were computed from unit hydrographs based on Snyder's formulae. From these, the following values are obtained, depending on differing assumptions as to infiltration rates. (Flows from the smaller areas are at the time of peak of the larger area).

	Infiltration Rate		
	0.15"/hr.	0.20"/hr.	0.30"/hr.
Johnson Brook	4,000 cfs	3,850 cfs	3,500
Great Brook Proper	1,280 "	1,200 "	1,100
Brook through Southwick Center	600 "	550 "	520
Total	5,880 cfs	5,600 cfs	5,120 cfs

The Kinnison-Colby "rare" flood would have a computed peak of 2,380 cfs.

From the above, an outflow of 4,000 cfs is considered safe and reasonable for design of a culvert at the railroad crossing, taking into account the reduction in peak due to storage in Great Brook Channel.

8. RISE IN LAKE LEVELS. - A 50 foot length of spillway at the north end is about the largest that can be constructed reasonably. An 8-foot long spillway at the Great Brook outlet is about the optimum that will serve the dual purpose of limiting outflow during storm peaks and lowering the lakes to normal within an allowable time after a major rise. The design storm (Plate III) was therefore routed over these spillways with results as shown on Plate V. This plate shows the cumulative volume of inflow from the design storm and the cumulative outflow for the two spillway designs, with corresponding Lake elevations. It will be noted that the lakes would rise to Elev. 229.1, or about 0.2 ft. below the level of Aug. 19, 1955, for the outlet at Great Brook only. With the spillway at the north end, the lakes would rise to Elev. 228.3, a decrease of 0.8 ft. over the other design.

The Great Brook outlet would discharge about 210 c.f.s. at maximum level of the lakes but only about 120 c.f.s. at the peak of the storm. The 50-foot spillway would discharge about 1,050 c.f.s. at maximum level of the lakes.

#### 9. COSTS

(a). Great Brook Channel. Detail cost estimates for culverts at the railroad crossing and at Point Grove Road as shown on Plate II are

summarized in the following:

Railroad Culvert .....	\$86,400
Point Grove Road Culvert ....	<u>32,600</u>
Total	\$119,000

(b) Lake Outlet, Alternative No. 1 - Table A shows detail cost estimates for the dikes and protective works proposed under Alternative No. 1 (Plate VI). A summary is:

Dike at North End .....	\$ 24,900
Great Brook Outlet .....	21,600
Dike at South End .....	<u>5,000</u>
Total	\$ 51,500

(c) Lake Outlet, Alternative No. 2. Detail cost estimates for the various component parts required by the north end spillway scheme, Alternative No. 2, Plate VII, are summarized below:

Great Brook Outlet .....	\$21,600
Dike at South End .....	5,000
Spillway Dam at North End ....	67,200
Spillway Channel at North End	24,700
Culvert, Longyard Road .....	16,000
Culvert, Middle to North Pond	<u>36,800</u>
Total	\$171,300

TABLE A

CONGAMOND LAKES  
ALTERNATIVE NO. 1  
ESTIMATE OF COST

<u>ITEM</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Amount</u>
<b>I. <u>DIKE AT NORTH END</u></b>					
1.	Temporary Closure at Point Grove Rd.	L.S.	-	-	\$ 1,500
2.	Diversion North Pond Inflow	L.S.	-	-	800
3.	Excavation	400	cu.yds.	1.50	600
4.	Compacted Fill	5,670	" "	2.75	15,600
5.	Gravel Filter	50	" "	6.00	300
6.	Riprap	100	" "	9.00	900
					<u>\$19,700</u>
	Engineering & Administration	10	%		1,970
					<u>\$21,670</u>
	Contingencies & Unforeseen	15	%		3,230
					<u>3,230</u>
	Total				<u>\$24,900</u>
-----					
<b>II. <u>GREAT BROOK OUTLET</u></b>					
1.	Care and handling of Water	L.S.	-	-	\$ 500
2.	Excavation	670	cu.yds.	1.25	840
3.	Backfill & Roadway Fill	2,450	" "	2.25	5,500
4.	Concrete	48	" "	35.00	1,680
5.	Forms	2,200	sq.ft.	1.25	2,750
6.	Reinforcing Steel	5,300	lbs.	0.13	690
7.	Roadway Surfacing	1,200	sq.yds.	3.00	3,600
8.	Shoulder and Misc. Work	L.S.	-	-	1,500
					<u>\$17,060</u>
	Engineering & Administration	10	%		1,700
					<u>\$18,760</u>
	Contingencies & Unforeseen	15	%		2,840
					<u>2,840</u>
					<u>\$21,600</u>
-----					
<b>III. <u>DIKE AT SOUTH END</u></b>					
1.	Access	L.S.	-	-	\$ 1,000
2.	Fill	1,200	cu.yds.	2.50	3,000
					<u>\$4,000</u>
	Engineering & Administration	10	%		400
					<u>\$4,400</u>
	Contingencies & Unforeseen				600
					<u>600</u>
					<u>\$5,000</u>





# *The Commonwealth of Massachusetts*

## *Department of Public Works*

### *Division of Waterways*

*100 Nashua Street, Boston 14*

June 5, 1956

*Rec'd  
June 7, 1956*

Hampden County Commissioners  
Court House  
Springfield, Massachusetts

Gentlemen:

Enclosed please find a copy of a report relative to improving Congamond Lakes in the town of Southwick, which was prepared for the Department by the consulting firm of Charles T. Main, Inc.

I am submitting this for your review and consideration and will plan to hold a meeting in Southwick next week between local and State authorities to further discuss this matter in order to decide what type of work should be undertaken by the Commonwealth. I will notify you as to the date and time of this proposed meeting.

Very truly yours,

*Rodolphe G. Besette*  
RODOLPHE G. BESSETTE

Director, Division of Waterways

Enc.





The Commonwealth of Massachusetts

LEGISLATIVE RESEARCH COUNCIL  
LEGISLATIVE RESEARCH BUREAU

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Legislative Research Bureau

HERMAN C. LOEFFLER, *Director*

June 7, 1956

County Commissioners of  
Hampden County  
Springfield, Mass.

Rodolphe G. Bessette, Director, Division of Waterways, has asked me to arrange a conference to be held in Southwick sometime next week between the Southwick Selectmen, the Hampden County Commissioners and Representatives Cowing and Porter to further discuss a report made by Charles T. Main, Inc. relative to providing a new outlet for Congamond Lakes in the town of Southwick, and decide the type and extent of work that should be undertaken by the Department to correct the problem in this area.

Inasmuch as the Representatives and I are at the State House attending legislative sessions from Monday through Thursday, Friday is the only day available to us to meet with this group. I therefore advise you that all parties named in this letter are requested to meet at the Southwick Town Hall at about three o'clock on Friday, June 15. This is not a public hearing and I trust that only the county commissioners, the selectmen, and members of the legislature, together with the Director of the Division of Waterways, will be the only ones present. Director Bessette has another engagement in the town of Barre at 11 that morning and hopes to be able to reach Southwick by 3 o'clock that afternoon.

Cordially yours,

Senator Ralph Lerche

RL:mm

Also West Springfield  
Water Board





The Commonwealth of Massachusetts

Senate

State House . Boston

Received  
June 14, 1956  
in Hampden  
Cty Comms' Office

June 13, 1956

✓  
TO: Hampden County Commissioners, The Southwick Board of Selectmen,  
The West Springfield Water Commission, Representative George W.  
Porter of Agawam, Representative William A. Cowing of West  
Springfield, and Rodolphe G. Bessette, Director, Division of  
Waterways.

Because of the funeral of former Governor Joseph B. Ely to be held at Westfield at 2:00 P.M. Friday afternoon, June 15th, I have this day contacted Rodolphe G. Bessette, Director of the Division of Waterways, D.P.W., and he has suggested that the meeting scheduled to be held at the Town Hall in Southwick at 3:00 P.M. this Friday, be postponed for one week. The same group is to meet at 2:00 P.M. Friday afternoon, June 22nd, at the Southwick Town Hall.

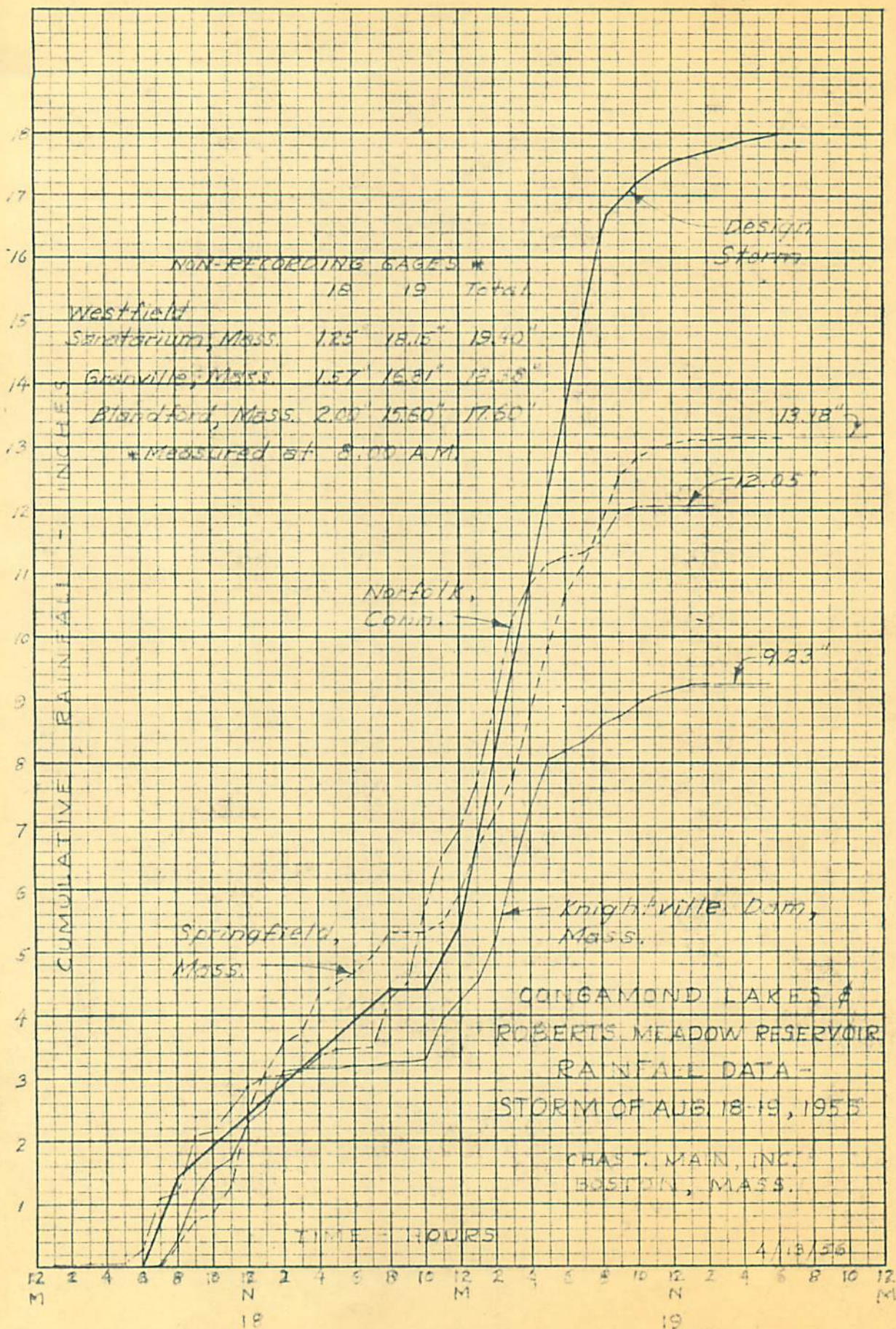
Sincerely yours,

A handwritten signature in cursive script that reads "Ralph Lerche".

RALPH LERCHE

Senator, Hampden, Hampshire and  
Berkshire District

RL/md







230

229

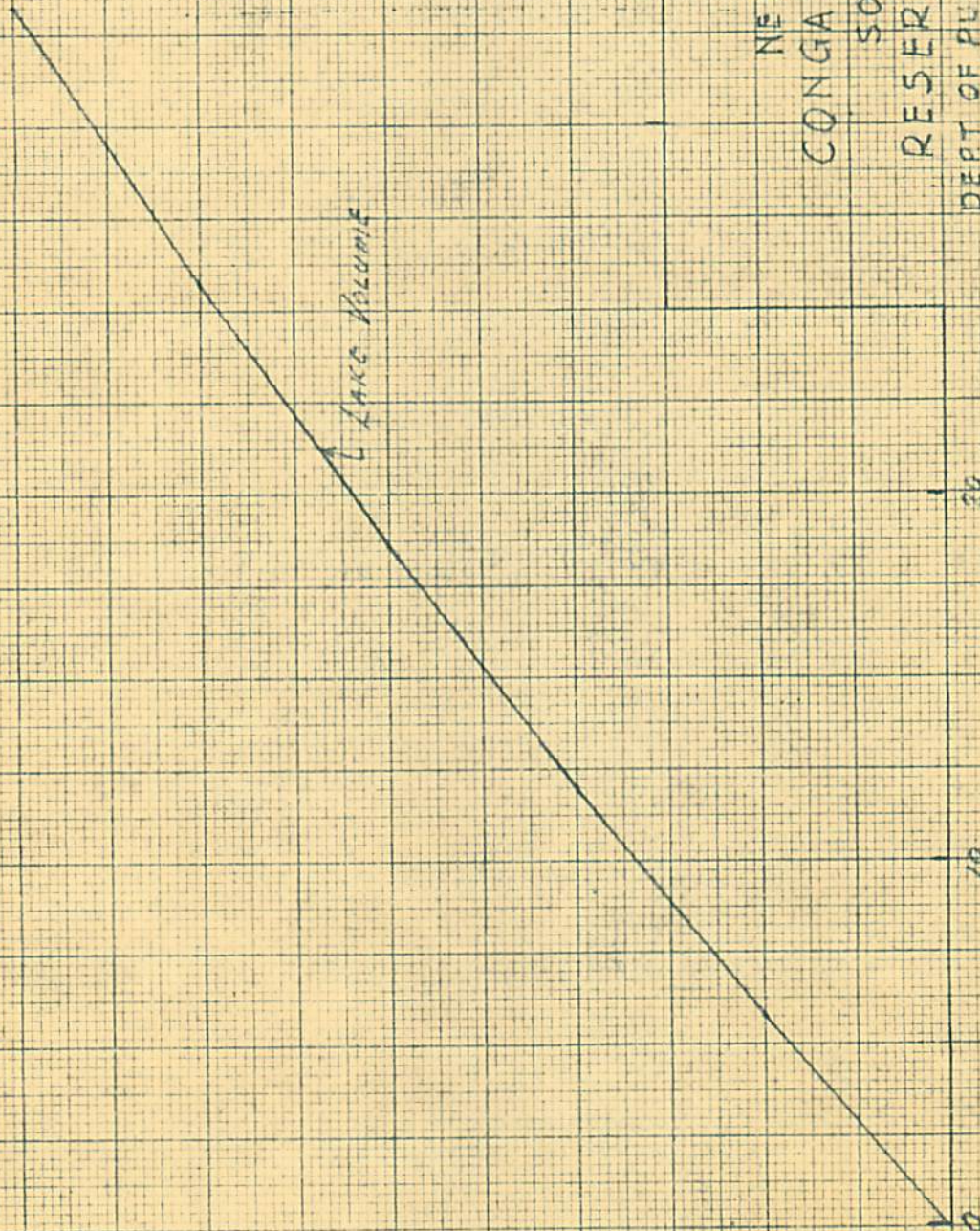
228

227

226

225

ELEVATION - FT



LAKE VOLUME

NEW OUTLET  
CONGAMOND LAKES  
SOUTHWICK

RESERVOIR VOLUME

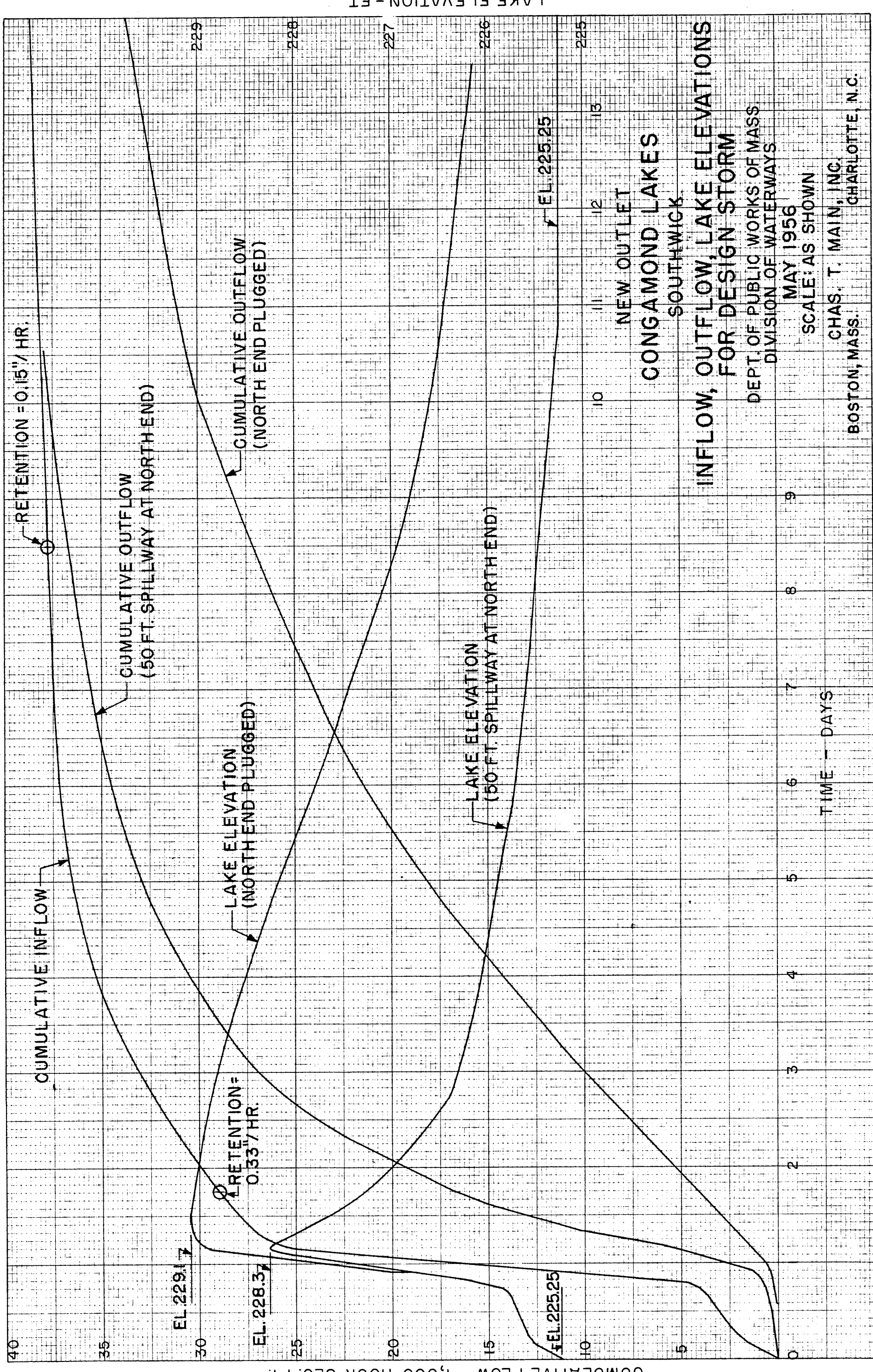
DEPT OF PUBLIC WORKS OF MASS.  
DIVISION OF WATERWAYS

MAY 1956

CHAS. T. MAIN, INC.  
BOSTON, MASS.  
CHARLOTTE, N.C.

PLATE II





LAKE ELEVATION - FT.

CUMULATIVE FLOW - 1,000 HOUR SEC. FT.

NEW OUTLET  
CONGAMOND LAKES  
SOUTHWICK

INFLOW, OUTFLOW, LAKE ELEVATIONS  
FOR DESIGN STORM

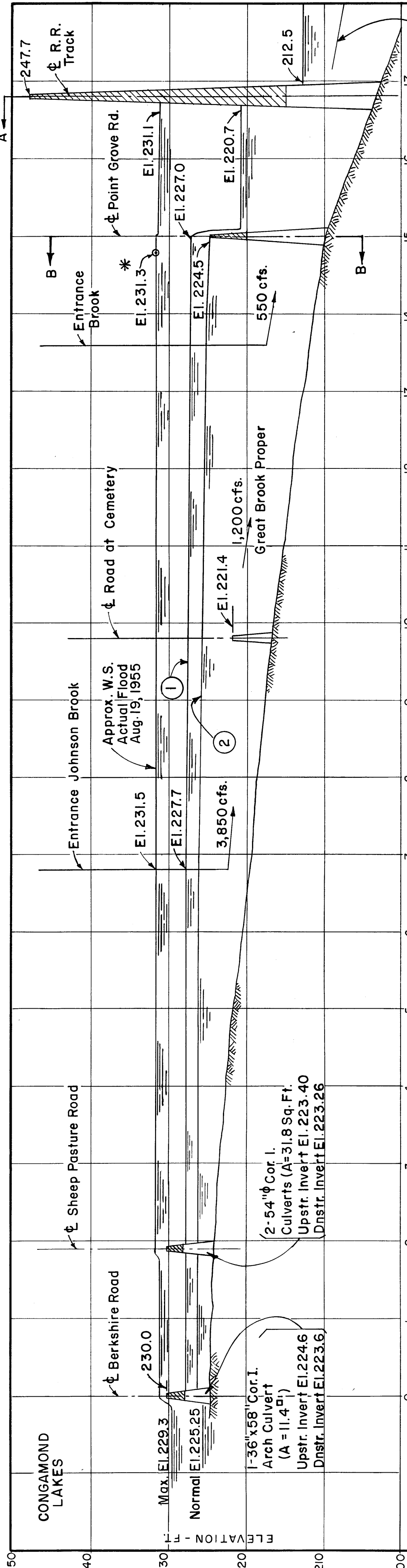
DEPT. OF PUBLIC WORKS OF MASS.  
DIVISION OF WATERWAYS

MAY 1956  
SCALE: AS SHOWN

BOSTON, MASS.  
CHAS. T. MAIN, INC.  
CHARLOTTE, N.C.

PLATE V





① Approx. W.S. with Added Culvert at R.R.

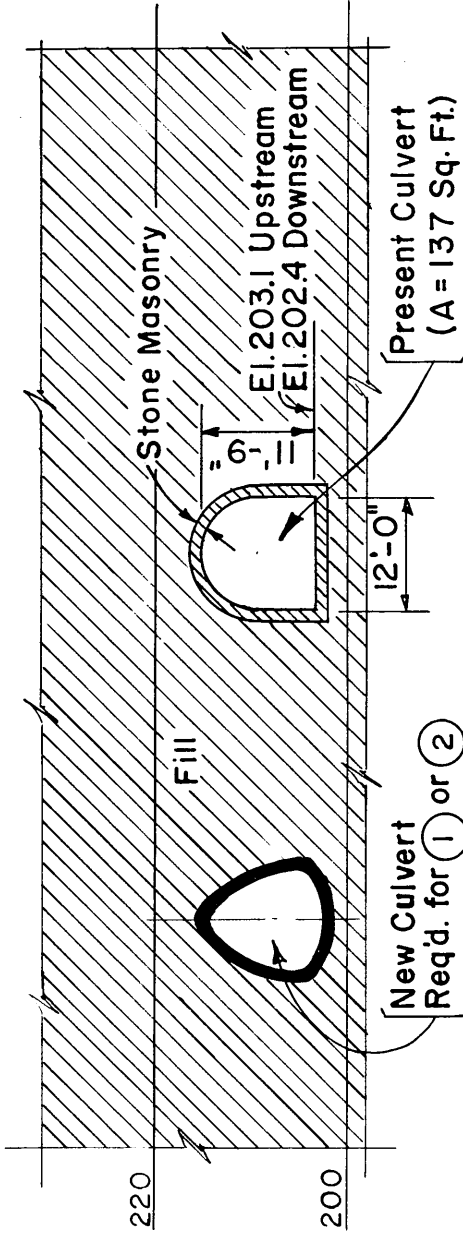
② Approx. W.S. with Added Culvert at Point Grove Road

PROFILE

Scale: 1" = 1,000 Ft. Horiz.  
1" = 10 Ft. Vert.

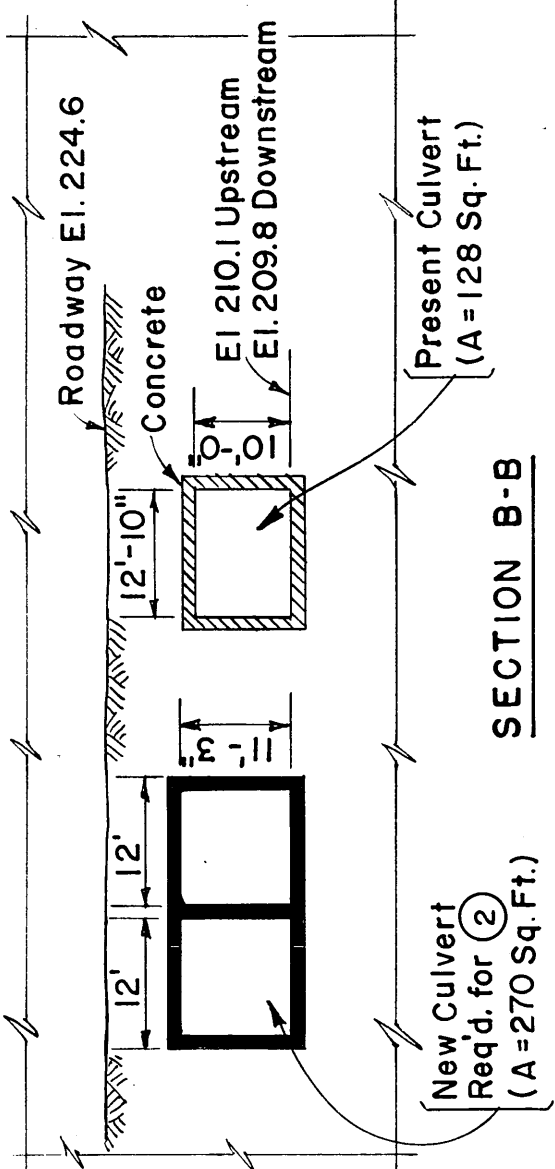
\* Actual El. Measured  
at Convalescent Home.

Q = 3,610 cfs Max (Actual Flood-Aug. 1956)  
Assume Q = 4,000 cfs. for Lowered Levels



SECTION A-A

Scale: 1" = 20'-0"

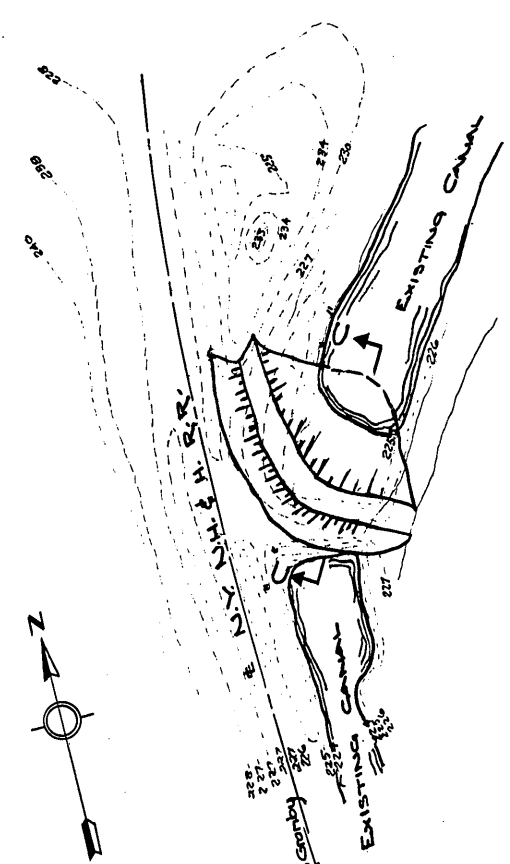


SECTION B-B

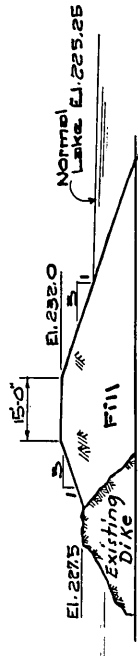
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NEW OUTLET  
CONGAMOND LAKES  
SOUTHWICK  
PROFILE OF GREAT BROOK  
DEPT. OF PUBLIC WORKS OF MASS.  
DIVISION OF WATERWAYS  
MAY 1956

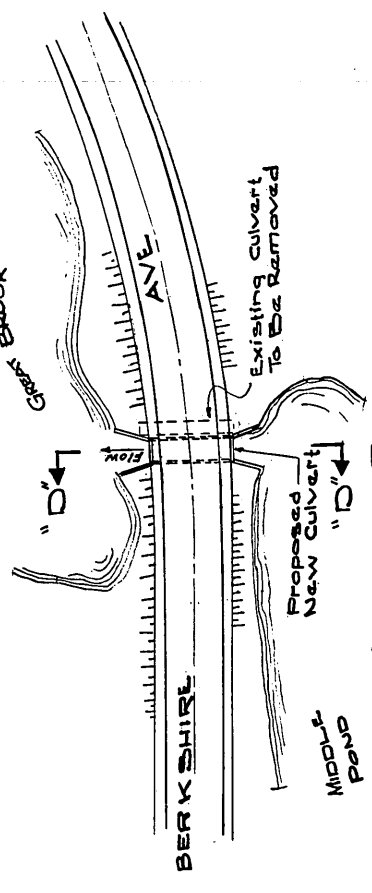
SCALE: AS SHOWN  
CHAS. T. MAIN, INC.  
BOSTON, MASS. CHARLOTTE, N.C.



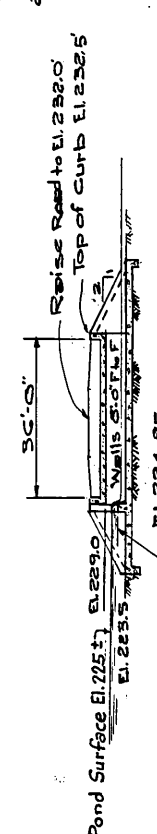
PLAN B  
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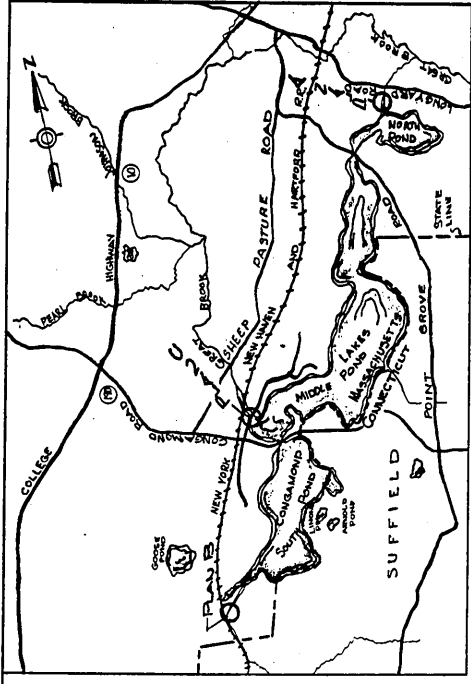
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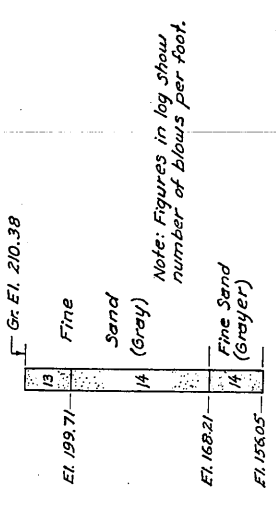
PLAN C  
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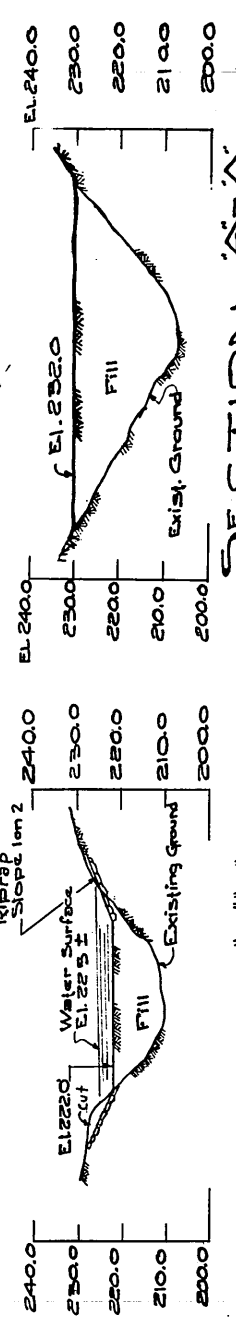
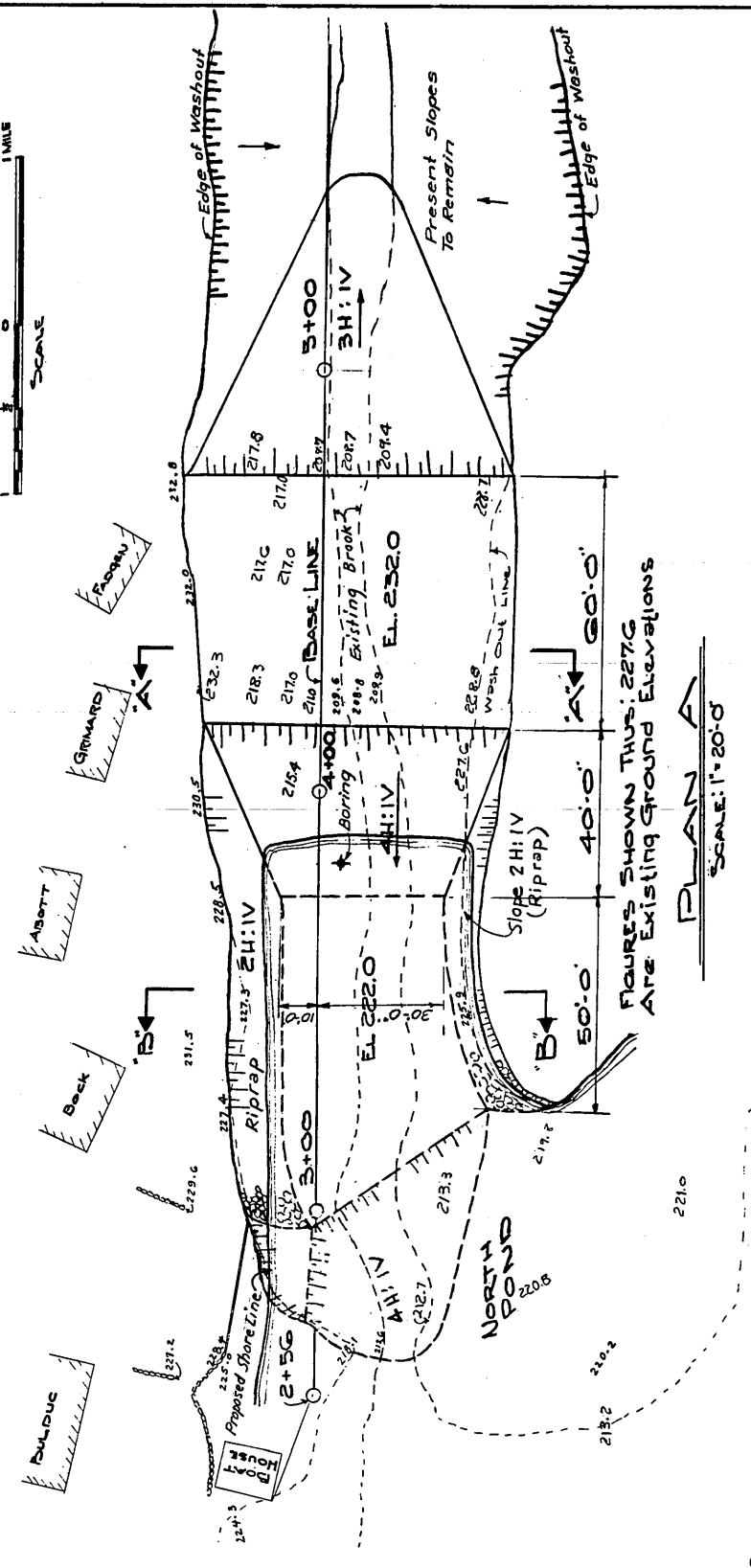
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SCALE: 1"=20'-0"



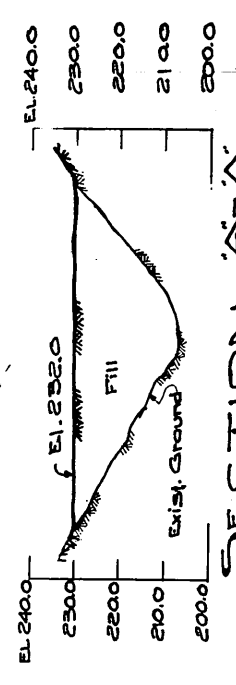
LOCATION PLAN  
SCALE: 1"=1 MILE



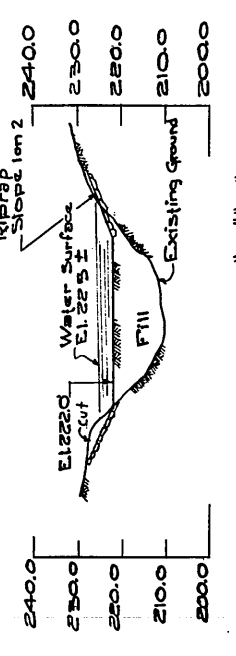
BORING



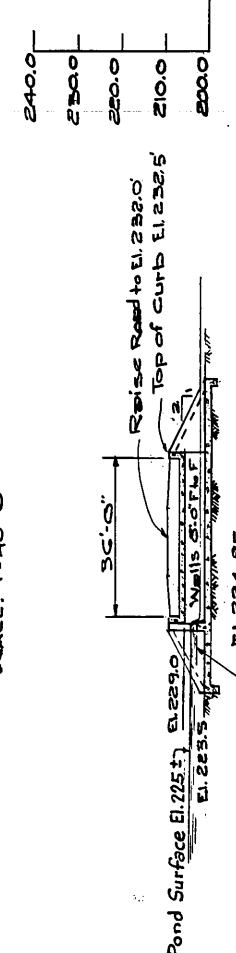
SECTION A-A'  
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SECTION B-B'  
SCALE: 1"=20'-0"



SECTION C-C'  
SCALE: 1"=20'-0"



SECTION D-D'  
SCALE: 1"=20'-0"

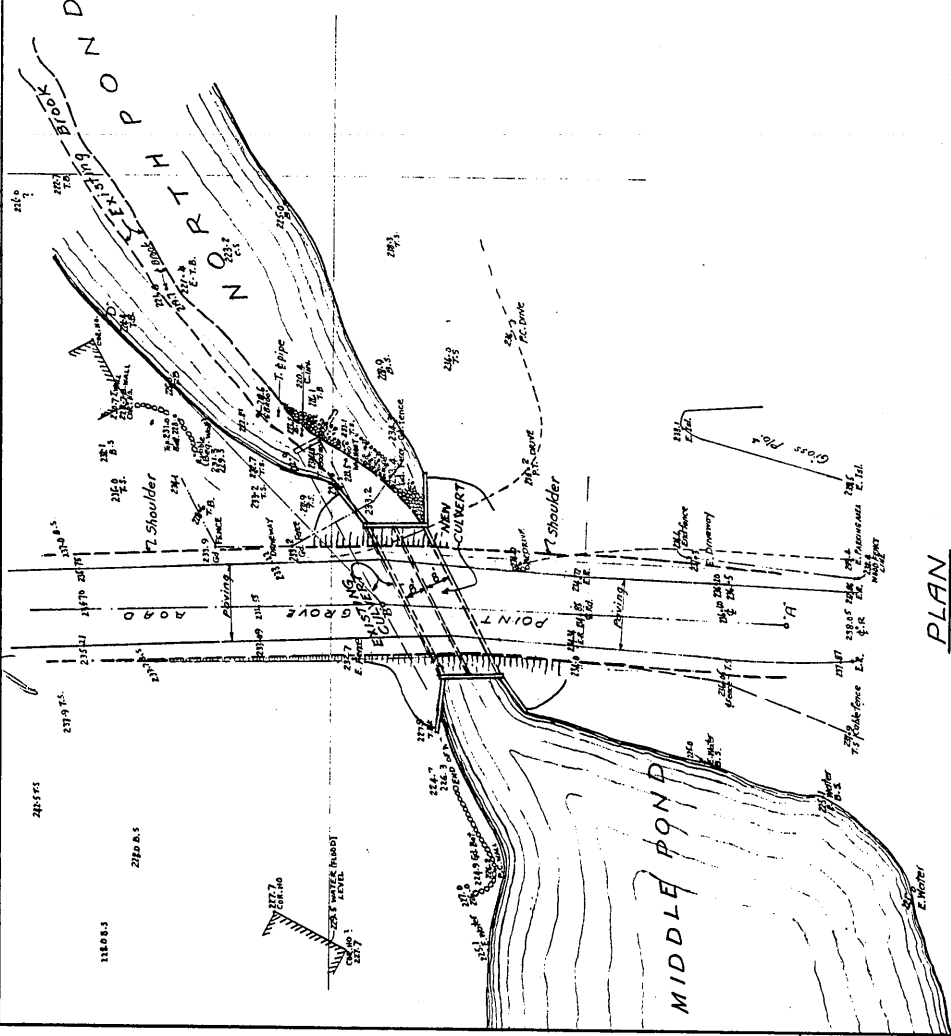
FIGURES SHOWN THUS: 227C  
ARE EXISTING GROUND ELEVATIONS

PLAN A  
SCALE: 1"=20'-0"

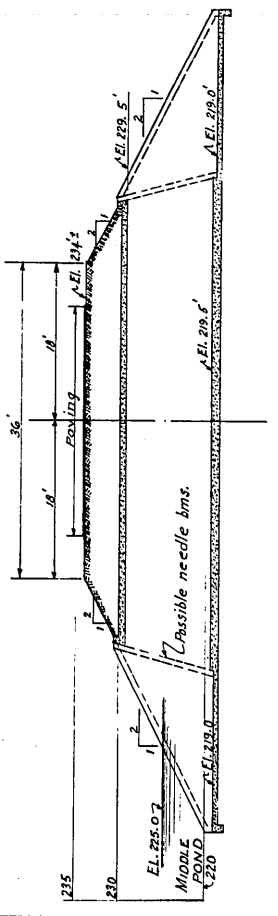
NEW OUTLET  
CONGAMOND LAKES  
SOUTHWICK  
ALTERNATIVE NO. 1  
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS  
DIVISION OF WATERWAYS  
MAY 1956  
SCALE: AS SHOWN  
CHAS. T. MAIN, INC.  
BOSTON, MASSACHUSETTS CHARLOTTE, NORTH CAROLINA



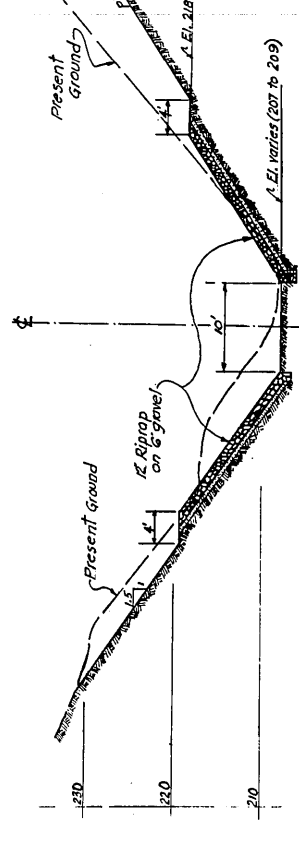




PLAN  
PROPOSED NEW CULVERT  
POINT GROVE ROAD  
Scale: 1"=30'

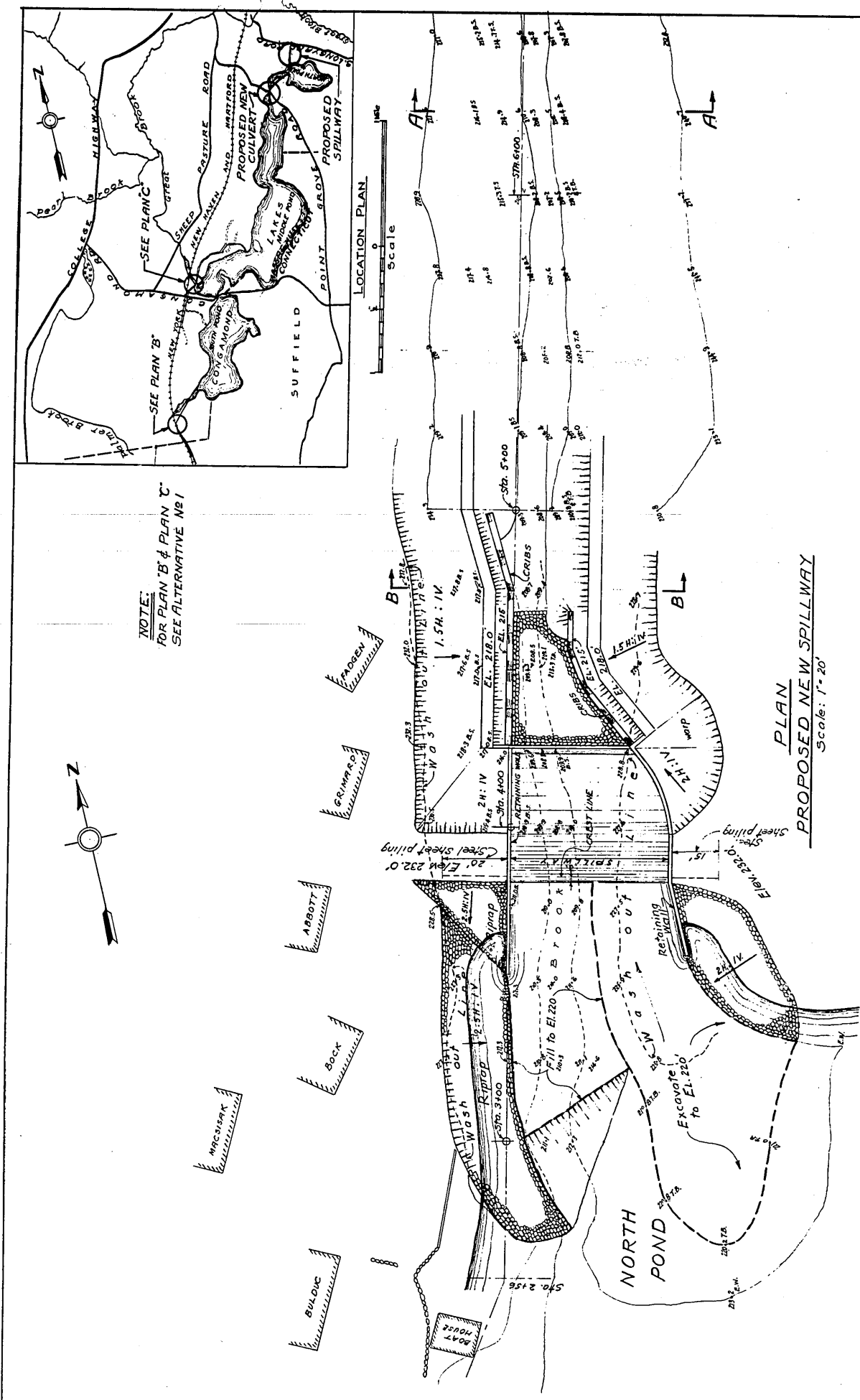


SECTION THROUGH CULVERT  
Scale: 1"=10'

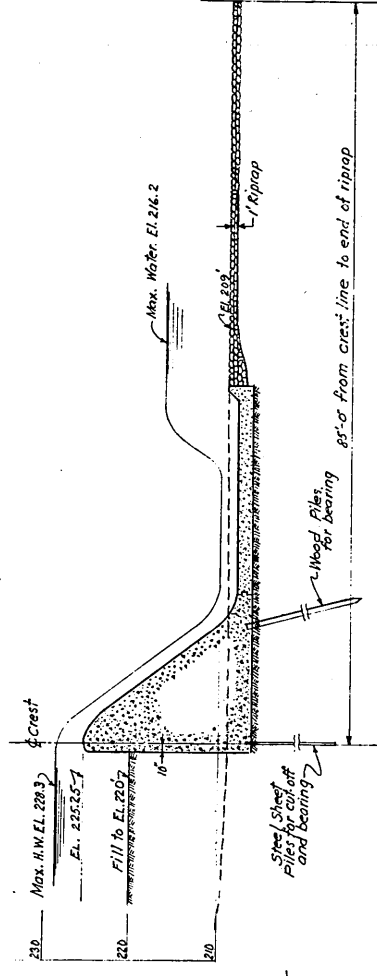


SECTION A-A TYPICAL FOR 10' WIDTH  
(20' WIDTH SIMILAR EXCEPT NO RIPRAP)  
Scale: 1"=10'

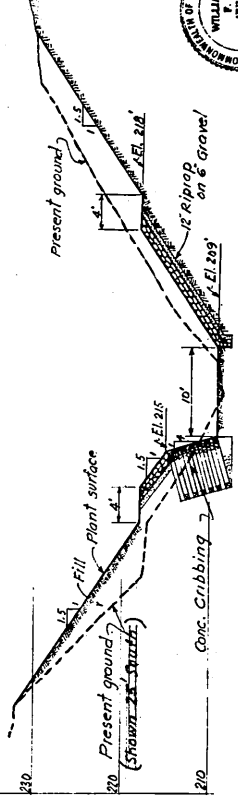
NOTE:  
10' Width to Sta. 6+66  
Transition from 10' to 20' to Sta. 9+66  
20' Width for remainder of distance  
Culvert of South Longyard Road to be  
increased from 4ft to 10ft Dia.



PLAN  
PROPOSED NEW SPILLWAY  
Scale: 1"=20'



TYPICAL SECTION THRU DAM  
Scale: 1"=10'



SECTION B-B  
Scale: 1"=10'



NEW OUTLET  
CONGAMOND LAKES  
SOUTHWICK  
ALTERNATIVE NO.2  
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS  
DIVISION OF WATERWAYS  
MAY 1956  
SCALE: AS SHOWN  
CHAS. T. MAIN, INC.  
BOSTON, MASSACHUSETTS CHARLOTTE, NORTH CAROLINA

# WESTFIELD PAGE

## This Will Be a Beautiful Lake Again



A new picture of the dry bed of North Pond at Congamond Lakes created as some of the damage of the Aug., 1955, floods. It will shortly be transformed to the beautiful pond it has always been, according to plans now in possession of the Hampden County Commission. By the erection of an earthen plug at the drainage point off the bottom of the picture, the Division of Waterways of the State Department of Public Works expects to restore the level of the pond and also restore the numerous summer camps and permanent homes to their previous value.

### PROMOTED



CAPT. ALBERT N. WEIDHAS

Westfield, June 8—Mrs. Helen N. Weidhas of 91 Orange St. has received word of the promotion of her son, Albert N. Weidhas, to the rank of captain in the Army. He is currently studying at the Language School at Monterey, Cal., where he is majoring in advanced Japanese.

Capt. Weidhas attended Dean Academy prior to his enlistment. He graduated from Officer's Candidate School and served with an armored division in Korea where he was wounded and was awarded the Purple Heart. While convalescing in Tokyo, Japan, he began the study of elementary Japanese and during his advanced study is tops in his class, having excelled three Japanese in their own language.

Capt. Weidhas is married to the former Katherine Payne, daughter of Mr. and Mrs. Charles Payne of Portland, Me. They have a daughter, Karen Marie.

## Congamond Restoration Plans Being Prepared

### County Commission Studies Report on Conditions Before Deciding on Flood Project

Rudolph G. Bessette, director of the Division of Waterways of the State Department of Public Works, has forwarded to the Hampden County Commission a study of conditions at Congamond Lakes preparatory to deciding on procedures for needed construction to restore the valuable recreation spot, which lost a great deal of its value in the August, 1955, floods.

At the behest of the state department, Charles T. Main, Inc., engineers, have prepared an exhaustive report embracing rainfall and drainage conditions and the suggested enlargement of culverts and reconstruction of earthen dams, which will restore not only the North Pond to its previous state but will make safe all outlets of the immense drainage area around the lakes.

After study by the County Commission there will be a public meeting in Southwick at a time and place still to be announced for the purpose of determining the type of work to be undertaken by the Commonwealth.

In the report, the engineering firm estimates that the earthen plug to recreate North Pond, the reconstruction and enlargement of several culverts and the raising of roadways will cost about \$51,500.

It is also noted in the report that the surface area of the three ponds total 464 acres, which is in the middle of an extensive drainage area.

The engineers noted that North

Pond did not go out until six or eight hours after the torrential rain stopped, giving rise to the belief that not only the rainfall and the drainage into the pond caused the washout, but the inflow of a considerable quantity of ground water. Commission Chairman William H. Stapleton and his fellow members, Ralph P. Walsh and Thomas F. Sullivan, will announce the time and place of the public meeting, which is recommended, as soon as word comes from Director Bessette.

## Final Assembly Today for High School Seniors

### Parents of Robert Brew Donated \$100 in Memory Of Their Son

Westfield, June 8—More than just a touch of sadness pervaded the final assembly program of Westfield High School seniors this morning when Class President Wayne Damron read a message from Mr. and Mrs. George Brew with respect to the recent death of their son, Robert, who was to have been a member of the graduating class.

Also it was announced that \$100 had been donated in memory of their son, to be used at a future date for use in the industrial arts and safety education programs.

George Velis announced the class gifts to the school which included a Bogen amplifier and speakers for the auditorium which will also be used at Municipal Field for the football games and a backdrop for the auditorium stage. The class also

made a gift of a wheel chair to the Noble Hospital.

President Damron presided the program with Vice-President Leonard Skerker reading Scripture and Secretary Chr. Bednarsky giving the prayer. Historian Mary McGowan led the flag salute. The program continued with the singing of the class "Halls of Ivy" with Wayne Damron as class president.

The school will graduate a class of 198 tonight. Diplomas will be awarded to 123 girls and 75 boys at commencement exercises to start at 8 in the Armory on Franklin St. On program is included in the class speakers will be the three ranking honor students, Le B. Skerker, valedictorian; Sandman, salutatorian; and

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2 1/4 acre corner with 220 feet of business frontage on U. S. Route 20, Springfield Road, Westfield. Prime business location. 4 room house included. Could be rented to make this property inexpensive to hold.

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### '51 PLYMOUTH SEDAN

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Southwick, sketch showing washout on Lower Loomis Street near DeBona Dam - 1936

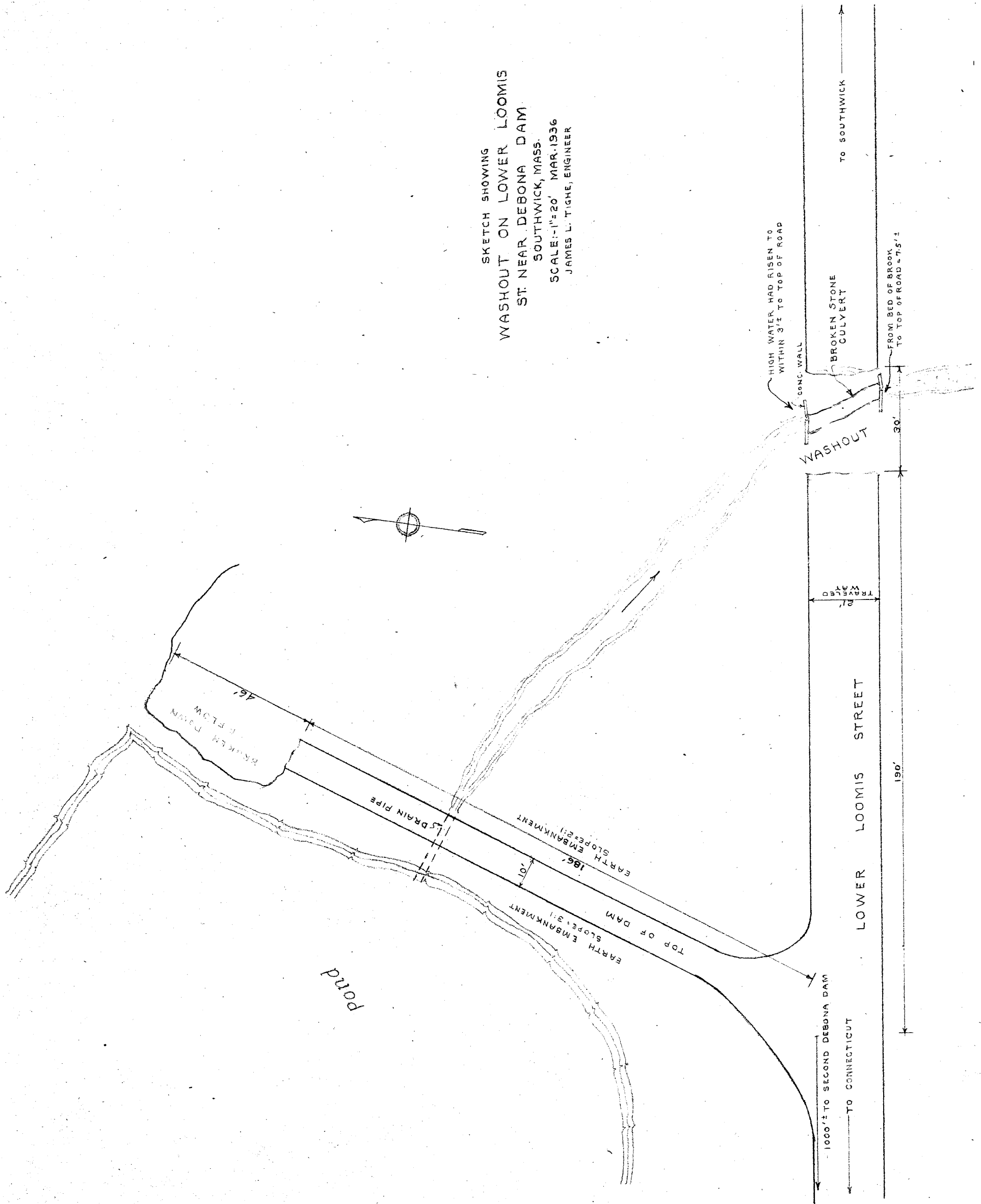


1936 Reports

Sketch filed march 25, 1936 by James L. Tighe. See also: County Highways (Southwick) - "DeBona Dam...": - ch09011-ch09045.

City/Town	Southwick
Dam	DeBona Dam
Streets	Loomis Street (lower)
Water	Sodom Brook

SKETCH SHOWING  
WASHOUT ON LOWER LOOMIS  
ST. NEAR DEBONA DAM  
SOUTHWICK, MASS.  
SCALE: 1"=20' MAR. 1936  
JAMES L. TIGHE, ENGINEER



### Southwick Dam Inspections - 1957 - 1969



## 1957 Reports

**Inspections by Tighe & Bond.**

City/Town	Southwick
Dam	Kimball Dam
Dam	Hathaway & Steane Company Dam #2
Dam	General Cigar Corporation Dams
Dam	Tysz Dam
Dam	Ahrens Dam
Dam	Cass Dam
Dam	Congamond Lakes Outlet
Dam	Reinart Pond Dam
Dam	Spencer Dam
Dam	Hathaway & Steane Company Dam #1
Dam	Kellog Dam
Dam	Pieczarka Dam
Dam	Logie Dams
Dam	Helliwell Dam
Dam	Fletcher Dams
Dam	Congamond Lakes Southern Dike
Dam	Hathaway & Steane Company Dam #3

Dam Congamond Lakes North Dike

Dam Steele Dam

Water Congamond Lakes

Water Great Brook

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
**BOWERS AND PEQUOT STREETS**  
**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**

**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

C.D. Southwick  
Jan. 31, 1957

The Hon. The Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections carried on in the Town of Southwick during the year 1956 have resulted in all dams in that community having been examined one or more times during the year. The following is a report on the condition of the various dams situated in Southwick.

A. Kellog Dam

This is an old abandoned small earth dam situated on a feeder brook that discharges to Munn Brook. The dam is located westerly of Loomis St. in the northwesterly portion of Southwick. No pond has been formed at the dam for a number of years. The site is inspected annually to be certain that no pond is formed by the structure. When last inspected, the dam still was inactive and no water was stored behind the structure.

B. Pleczarka Dam

This is a small masonry and earth dam situated on Shurtleff Brook at a point just easterly of Loomis Road and downstream of the brook crossing under Granville Road, Highway Rte. 57. The dam forms a very small pond used for private recreational and agricultural purposes. At one time, it was probably used for power purposes. For a number of years this dam has been very dilapidated and the pond formed has been very small. The dam itself is extremely low in height and the pond area partly filled in with natural materials. No damage of consequence resulted at the structure because of the flood of August, 1955. When last inspected, the dam was still in the same general dilapidated state in which it has existed for a number of years. Because of all factors involved, the structure presents no threat to life and property downstream and, consequently, is considered satisfactory in its present condition.

C. Dr. Logie Lower Dam

This was a very small dam built on Shurtleff Brook just upstream of its crossing under Loomis Road. The dam is very small and the pond formed negligible. Prior to the flood, this dam had been breached for many years. Certain repair work and



new construction had been carried on prior to the flood. The flood waters of August, 1955, did damage to the structure and the new work in the area. When last inspected, the structure was not impounding water in any volume and certain clean-up work had been done in the area.

D. Dr. Logie Upper Dam

This dam was a combination masonry and earth structure located upstream of the dam just described. The dam formed a fairly large pond used for recreational purposes in recent years. In the flood of August, 1955, the dam was washed out at its right end and right abutment area. A sizable section of the dam failed and a large breach was formed. This breach provides a free waterway for the passage of the flow of the brook. When last inspected, this dam was in the same condition and no repair work had been started. The breach thru the dam still provided a good free waterway. Repairs to the dam have been discussed with the owner but as of the time of the last inspection, no repair work has been started, nor have any plans, other than preliminary plans, been prepared showing proposed reconstruction.

E. Steele Dam, Now Helliwell

This is a small stone masonry and earth structure located on the headwaters of Pearl Brook at a point northerly of Vining Hill Road and southerly of Davis Road in the central western portion of Southwick. The pond formed by the dam is quite small and is used for private recreational purposes. As a result of the flood of August, 1955, no damage of consequence occurred at this dam. When last inspected, the dam was found to be in satisfactory condition.

F. Fletcher Dam (Congamond Lakes Southern Dike)

This is an earth dike across the southern outlet of Congamond Lakes situated just upstream from the Connecticut State line and adjacent to the N. Y., N. H., and Htfd. railroad tracks. The purpose of the dike is to prevent the flow of water from Congamond Lakes southerly into Connecticut. In the flood of August, 1955, when Congamond Lakes rose to extreme heights, this dike was overtopped by the flood waters. Some damage was done to the dike but maintenance of the structure by Town and volunteer personnel prevented major damage from occurring. When last inspected, the dike was found to be in satisfactory condition. Certain improvements are being planned for Congamond Lakes in regard to the dam and dike facilities and it is anticipated that improvements will probably be made at this location.

G. Fletcher Dam (Congamond Lakes Outlet)

This is the site of an old small dam that consisted mainly of a set of gates used in controlling the flow from Congamond Lakes and back from Great Brook into Congamond Lakes during certain times of the year and under certain flood flow conditions. These

gates have not been in existence for some time but the site of this so-called dam is inspected annually. In the flood of August, 1955, this outlet from Congamond could not handle the flow from the Lakes and consequently the north dike was washed thru. No damage of consequence was done at the site of the old Fletcher control gates in the flood of August, 1955. However, some damage was done to the culvert at the outlet under Berkshire Road. It is my understanding that the overall study being made of the Congamond Lakes drainage system and drainage area, together with the outlet from Congamond Lakes, will include recommendations regarding outlet facilities in this general location. When last inspected, conditions at the site of this old dam were about the same as have existed in recent years.

#### H. Congamond Lakes North Dike

This was a dike at the northerly end of Congamond Lakes northerly of North Pond and southerly of Longyard Road. In the flood of August, 1955, the water of Congamond Lake North Pond overflowed this dike and washed out the structure. As a result of this washout, the tremendous gorge from North Pond to and thru Longyard Road area occurred. Congamond Lakes were prevented from being lost entirely thru this breach by a temporary dam hastily erected in the culvert at Point Grove Road connecting Middle Pond with North Pond. The study now being carried on of the Congamond drainage area and outlet works will include construction at this area. When last inspected, conditions at this North Dike area remain unchanged but Longyard Road has been rebuilt with a tremendous earth fill and a culvert under the fill for the purpose of taking any drainage from the North Pond area.

#### I. Reinart Pond Dam

This is a very small privately owned earth and masonry dam forming a small pond used for private and agricultural purposes. It is located northerly of College Highway near the intersection of Jackson Road. Because of the size of the dam and the small drainage area, it is doubtful if this dam comes under County jurisdiction. It has been inspected each year, however, and following the flood of August, 1955, it was found that while the dam was topped by the flood water, a makeshift swale spillway at the end of the dam helped to pass the flood water and no damage of consequence occurred. When last inspected, this dam was found to be in generally the same condition as has existed for a number of years. Though somewhat dilapidated, the structure is satisfactory.

#### J. Fletcher Dam on Great Brook

This is a masonry dam across Great Brook southerly of Depot Street and just downstream from the crossing of Great Brook under Point Grove Road. This dam has been dilapidated for a number of years. However, the pond behind the dam is very shallow and small, and the dam itself is of substantial size and has resisted flood waters well thruout the years. The abutment areas of the dam are earth embankments. For a number of years, the spillway section

has had a portion of the concrete cap missing. No major damage was done to this structure as a result of the flood of August, 1955. The dam itself, the spillway sections and the earth embankment abutments withstood the tremendous flood waters exceptionally well. The dam apparently has no practical use at the present time. At one time it was used as a source of power. When last inspected, the dam, though dilapidated, was not dangerous. There was talk that the dam would be removed to form a free waterway in this area.

K. Hathaway & Steane Co. Dam #1

This was a small earth embankment with a tube spillway located on Slab Brook just easterly of College Highway, Route 202. The dam formed a small pond used for irrigation purposes on the local tobacco farm. In the flood of August, 1955, this dam was washed out in the central section. Since then the dam has been restored and is in satisfactory condition.

L. Hathaway & Steane Co. Dam #2 This dam is located immediately downstream from the dam above-described. It is the same type of dam and used for the same purpose. This dam was washed out by the flood of August, 1955. Following the flood it was noted that flashboards were still in the overflow. This dam has been repaired and when last inspected, was found to be satisfactory.

M. Hathaway & Steane Co. Dam #3

This is a small and very shallow dam located on a short tributary to Kellog Brook at a point easterly of College Highway, Route 202. The pond formed by this dam is used for agricultural purposes in connection with the operation of the local tobacco farm.

It is doubtful if any of the above three dams come within the jurisdiction of the County, since the drainage areas involved are less than a square mile, the dams are less than 10' in height, and the ponds formed are insignificant in size. The sites are inspected annually, however, to be certain that the height of each dam is not increased, nor the storage capacity enlarged.

N. Cass Dam

This is a very small dam situated on the headwaters of a feeder brook discharging to Great Brook. The dam is located westerly of Foster Road at a point between Feeding Hills Road and South Longyard Road. The pond formed by the dam has been used for private recreational purposes. In the flood of August, 1955, the central section of the dam was washed out and no pond was formed by the structure. When inspected early in 1956, this dam was still in the same general condition and a reasonably free waterway existed. The dam has always been rather dilapidated and, in fact, prior to the flood the structure was partially breached and the pond that was formed was extremely small.

There are a total of fourteen dams and dikes in Southwick. Three of these, one dam and two dikes, are in connection with Congamond Lakes. Of these dams and dikes, five suffered serious damage. The worst casualty of all was the failure of North Pond Dike and the release of this large body of water thru the valley of Great Brook.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/f

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

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**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

C.D. Southwick

Jan. 31, 1958

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

Gentlemen:

Inspections carried on throughout the Town of Southwick during the past year have resulted in all dams in that community having been examined one or more times. The following is a report on the condition of the various dams situated in Southwick.

A. Kellog Dam

This dam is in the same general condition that has existed for some time. It is still inactive and no water is stored.

B. Pieczarka Dam

This dam is very low in height and the pond area behind the dam is partly filled with earth and miscellaneous materials. The dam is somewhat dilapidated but because of its small height and its location the structure presents no threat to life and property downstream. Consequently, its condition is satisfactory.

C. Dr. Logie Lower Dam

This is a very small low dam built on Shurtleff Brook just upstream from its crossing under Loomis Road. The spillway is rather small for the drainage area involved. However, since so little water is ponded, the structure is not dangerous to persons and property downstream.

D. Dr. Logie Upper Dam

This dam has been rebuilt during the past year. It was breached in the flood of August, 1955 when the right end and right abutment area was washed through.

Plans and specifications for proposed reconstruction were prepared, filed, and approved. The dam has been rebuilt in accordance with the plans and specifications. There is still some work that should be done, however, in order to improve the safety at the dam. This work is:

- A. The spillway chute downstream of the newly constructed masonry section should be widened and trees on the banks of the spillway chute should be removed. As they now exist, flood waters could wash out these trees with the result that they would fall into the spillway chute and probably block the flow of flood water.
- B. Behind the left spillway wall the earth should be graded in the cut area so that surface runoff will not wash this soil from behind the spillway wall.
- C. Leakage is occurring thru the dam and emerges at the toe. This is probably due to the coarse embankment material used in constructing the dam and due to the foundation on which the dam has been built. This leakage is not dangerous since the head is low and the dam fill quite wide. However, the leakage might be enough to cause lowering of the pond in extreme dry weather. Leakage control could best be accomplished on the upstream face of the embankment by dumping fine material into the pond or paving the upstream surface of the embankment and the bottom of the pond adjacent to the embankment with an impervious material. The free flow now occurring at the toe of the dam must not be plugged on the downstream face.

E. Helliwell Dam

This dam was found to be in relatively good condition. However, one stop log should be removed from the spillway until after the spring runoff. This will increase the capacity of the spillway and help in preventing over topping of the dam in case of heavy runoff.

F. Fletcher Dam (Congamond Lakes Southern Dike)

This dike was found to be in very good condition.

G. Fletcher Dam (Congamond Lakes Outlet)

There is no dam at this location any more. The dam formerly consisted of gates used to control water level. The gates have been gone for many years. During this past year when the repair work was done at the two dikes and at the lake outlet, a new culvert and head wall was built at Berkshire Street upstream of the location of the old gates. The head wall has been built to allow for the placing of stop planks should it be desirable to control pond level by preventing the outflow of water or to prevent Great Brook from backing into the pond if necessary. Conditions at the Lake Outlet are satisfactory.

H. Congamond Lakes North Dike

During the past year this dike has been rebuilt and the structure is in good condition. This is the dike that was breached in the flood of Aug., 1955, and resulted in a great amount of damage downstream. The new north dike has no provisions for overflow. It is extremely wide and is loamed and seeded on the dry side as well as on its top.

To my knowledge, no plans or specifications were ever filed by the Division of Waterways for County approval of this construction on Congamond Lakes.

I. Reinart Pond Dam

Though this structure is quite dilapidated, it is satisfactory since the dam is low and only a very small pond of water is formed.

J. Fletcher Dam on Great Brook

This structure is now quite dilapidated. Part of the stone spillway is beginning to be washed away. This is not dangerous to persons and property downstream since the action will be slow and progressive. The more stone work that is washed out, the greater will be the opening thru the dam and thus the greater will be the capacity for handling flood flows. Hardly any pond is formed by the dam.

If a stream clearance project is sponsored for Great Brook, then this dam should then be removed. It apparently will serve no special purpose in the future.

K. Hathaway & Steane Co. Dam #1

Conditions at this dam were found to be satisfactory.

L. Hathaway & Steane Co. Dam #2

Conditions at this dam were found to be satisfactory.

M. Hathaway & Steane Co. Dam #3


This dam is very low in height and forms a shallow pond that is probably as much swamp as it is a pond. Though the structure is quite dilapidated the insignificant amount of water impounded forms no threat to persons and property downstream.



N. Cass Dam

This structure is still breached and as a result no water is ponded.  
The breach is wide enough to allow the passage of flood flows.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. MC DONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON  
TEL. JEFFERSON 3-3991

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SUPERVISION OF CONSTRUCTION  
AND OPERATION  
INVESTIGATIONS, REPORTS,  
PLANS AND SPECIFICATIONS

CD Southwick

Nov. 24, 1958

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections carried on throughout the Town of Southwick during the past year have resulted in all dams in that community having been examined one or more times. The following is a report on the condition of the various dams situated in Southwick.

A. Kellog Dam

This dam is in the same general condition that has existed for many years. The dam is not active and little or no water is stored. The pond area is becoming overgrown with brush. It is doubtful if this dam will be reactivated in the near future.

B. Pieczarka Dam

This structure is breached and apparently abandoned. No pond is formed and the flow of the brook passes thru the breached portion of the masonry spillway. The breach is wide enough to provide for the full flow of the stream.

C. Dr. Logie Lower Dam

Surface wash from the left end of the dam is causing the formation of gullies in the embankment. These have been partly filled with broken blocks. Proper drainage should be provided to keep the surface wash off of the dam embankment. As mentioned in previous reports, the spillway is rather small for the drainage area involved. To properly protect the dam embankment, the owner should give consideration to increasing the spillway capacity. Since the height of the dam is well under 10 ft., the drainage area much less than a square mile and just under 1,000,000 gallons of water is ponded, the dam does not come under County jurisdiction.

D. Dr. Logie Upper Dam

The earth embankment of this dam has been loamed and seeded. Small gullies are being washed into the downstream face of the embankment near the drawoff pipe. This condition should be corrected. Leakage was noted along the toe of the embankment as well as along the outside of the corrugated iron drawoff pipe. Because of the low head involved and the large mass of the embankment, the leakage is of no consequence from a safety viewpoint. Trees growing in the spillway chute have not as yet been cut down and removed. This recommendation has been made previously. The owner should be directed to clear the spillway chute.

E. Helliwell Dam

This dam was found to be in satisfactory condition. There is some seepage thru the stone masonry but this has been occurring for many years.

F. Fletcher Dam (Congamond Lakes Southern Dike)

This dike was found to be in relatively good condition. There are a few places in the downstream face where small slides and washes have occurred. These should be watched from time to time and repairs made as necessary.

G. Fletcher Dam (Congamond Lakes Outlet)

This structure, now situated at Berkshire Street, was found to be in good condition. One stop log was in place in each of the two outlet sections.

H. Congamond Lakes North Dike

Surface wash is occurring on the face of this dike both on the pond side as well as on the dry side. Regular maintenance should be done to control this condition. Gullies being washed into this dike could properly be stopped or at least better controlled, by the placing of loam and seed on the dike and by the construction of paved runoff gutters.

I. Reinart Pond Dam

This structure is somewhat dilapidated. The pond was found to be empty. Conditions at the dam were satisfactory.

J. Fletcher Dam on Great Brook

This structure is quite dilapidated. The stone and concrete masonry of the spillway is being slowly washed away so that the spillway notch is becoming deeper and wider. This action will be progressive and the rate of destruction will be slow and perfectly safe. This dam apparently will not be used for any constructive purposes in the future and if a stream clearance project is ever sponsored, the dam should be completely removed.

K. Hathaway & Steane Co. Dam #1

The pond was found to be drawn down when last inspected and only one stop log was in place in the spillway structure. The dam is in fairly good condition.

L. Hathaway & Steane Co. Dam #2

This dam was found to be in good condition. When last inspected, stop logs were out of the spillway and the pond nearly empty for the winter season.

M. Hathaway & Steane Co. Dam #3

This is a very small dam that forms a shallow pond that is more of a swamp than a pond. An insignificant quantity of water is impounded and though the dam is dilapidated, it presents no threat to persons and property downstream.

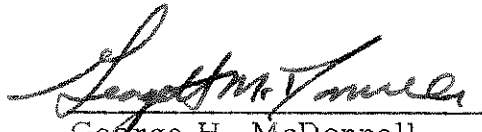
N. Cass Dam

This dam is still breached and as a result, no water is ponded. The breach is wide enough to allow for the passage of flood flows.

O. Hathaway & Steane Slab Brook Dam

This is an old dam not inspected previously since its existence was unknown. The dam is approximately 110 ft. long and is about 8 ft. high. The dam is an earth embankment having a top width of 15 ft. A 30" spillway tube extends from a spillway box at the pond and carries the flow of the brook thru the dam. The inlet to the tube is controlled with stop planks. When inspected, about one half of the planks were in place. The drainage area involved appears to be slightly less than 1 sq. mile. Thus, the dam as now existing does not come under County jurisdiction. However, since it is a borderline case and since the well field of the West Springfield Water Department is situated not too far distant downstream, the dam should be checked and will be inspected by the undersigned each year to be certain it is not enlarged without proper approval.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Southwick  
December 15, 1959

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

Gentlemen:

Inspections carried on in the Town of Southwick during the past year have resulted in all dams in that community having been examined one or more times. The following is a report on the condition of the various dams situated in Southwick.

A. Kellogg Dam

This dam is in the same general condition as reported in previous years. No water is stored and the pond area is rapidly becoming overgrown with brush and trees. It is doubtful if this dam will be reactivated in the near future.

B. Pieczarka Dam

The dam is still breached as the result of the flood of August, 1955. The owner has no plans for reconstruction in the near future. The breach is wide enough to pass flood flows.

C. Dr. Logie Lower Dam

The embankment is in fair condition. Erosion at the left portion of the embankment has been controlled to a great extent by drainage improvements. The spillway was found blocked at the opening with floating debris, and some debris as well as a large wooden box was found in the spillway conduit itself. All of this debris should be removed. The spillway entrance area should be cleared and cleaned. The downstream end of the concrete spillway is beginning to erode badly and should be repaired. More spillway capacity is desirable at this dam.

D. Dr. Logie Upper Dam

The earth embankment is in fairly good condition. Fertilizer should be

applied to the turf in 1960. Erosion conditions previously reported seem to be under control. Seepage still occurs at the toe of the dam and along the outside of the draw-off pipe. However, the seepage seems to be reduced from that noted previously. Brush growth and debris in the spillway channel should be removed.

E. Helliwell Dam

The dam is in satisfactory condition and the spillway is OK. Some seepage occurs through the face of the dam at the right side but this is not important. Downstream of the dam at the right bank, the stone masonry wall is starting to collapse. This will not endanger the dam since the structure is independent of this portion of the stream bank. However, it might be well to notify the owner so that repairs could be made if he so desired.

F. Fletcher Dam (Congamond Lakes Southern Dike)

The dam was found to be in good condition. Small slides reported last year have not been repaired. However, natural vegetation growth has caused stabilization and conditions are satisfactory. Sod growth is good to fair.

G. Fletcher Dam (Congamond Lakes Outlet)

This structure is in very good condition. One stoplog was in place in each of the two waterways.

H. Congamond Lakes North Dike

This structure is in fair condition. However, erosion control is needed to prevent further damage by surface wash. Small gulleys are being formed on the pond side face. The road built across the valley on the top of the north end of the dike could be the cause of an erosion problem by channeling surface wash onto the dike. Surface drainage facilities should be properly designed and built and then maintained.

I. Reinart Pond Dam

This dam is very small but rather dilapidated. Some maintenance work has been done on the embankment during the past year. The pond is so small in size and shallow in depth that loss of the dam would not endanger

persons and property downstream. When last inspected, the structure was satisfactory.

J. Fletcher Dam on Great Brook

At the center of the spillway, the breach previously reported was noted to be wider and deeper. Its depth has now increased to a point where the water level of the pond is 3 ft. or more below the old elevation. The breach seems to have enlarged by storm runoff as well as by intentional action of the owner. Natural runoff of storm flows will continue to widen and deepen the breach at a slow but steady rate. The dam as existing presents no danger to persons and property downstream.

K. Hathaway & Steane Co. Dam #1

The embankment is in fair condition. A small gulley has been eroded from surface wash from the right side of the embankment and this condition should be corrected by preventing surface wash from flowing onto the embankment. One stoplog was in place in the spillway and the pond was about empty.

L. Hathaway & Steane Co. Dam #2

The embankment was found to be satisfactory; the spillway was in good condition. Only a few stoplogs were in place in the spillway and the pond stored was quite shallow.

M. Hathaway & Steane Co. Dam #3

Conditions at this dam were the same as those noted in previous years. The pond formed is nothing more than a shallow swamp. Though the dam is dilapidated, it is low in height and does not endanger persons and property downstream.

N. Cass Dam

This dam has been breached for years and hardly any evidence of the old structure remains. No pond is formed and the breach is wide enough to pass storm flows.

O. Hathaway & Steane Slab Brook Dam - Dam #4

The embankment of this structure is in fairly good condition but needs some minor maintenance. The spillway inlet was found blocked with a metal drum and other debris. The spillway should be cleared and cleaned.




P. Lake George Sportsmens' Club Dams

On a tributary to Munn Brook, just south of the Westfield City line, are located two artificial ponds to the north of a brook that flows in an easterly direction. The upper pond contains about one-fifth of a million gallons of water and has a depth of only 4 ft. This pond is fed from a pipeline leading from the brook and from a springhouse. The flow of the brook thus does not pass thru the pond.

The lower pond contains just under half a million gallons of water and has a depth of about 4.5 ft. This lower pond is fed by the overflow from the upper pond. Both ponds are actually located at a higher elevation than the brook itself at the point where the brook flows parallel to each pond. As now existing, these structures do not come under county control. Periodic inspections will be made to be certain that the brook itself is not dammed.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/m

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

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INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Southwick  
Nov. 16, 1960

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

Gentlemen:

Inspections completed to date, within the Town of Southwick, have resulted in all dams in that community having been examined one or more times during the year 1960. The following is a report on the general condition of the various dams situated in Southwick:

A. Kellogg Dam

This dam remains in the same general condition as reported in previous years. No water is stored whatsoever and the pond area is becoming overgrown with sizable brush and trees. At the time of the last inspection, the undersigned discussed the future of the dam with the property owner. He doubts if he will ever reactivate the old dam and pond. The breach thru the dam is wide and deep and thus no water is stored, even in time of storm runoff.

B. Pieczarka Dam

This dam was breached by the flood of August 1955 and nearly all evidence of the old structure has now been removed. The brook course and the valley have been cleared up and shaped, as well as graded. It is apparent that the Owner does not plan any reconstruction and since little or no evidence of the old structure now remains, further inspections at the site of this dam are unnecessary.

C. Dr. Logie Lower Dam

The embankment at this dam is satisfactory. The spillway capacity should be increased to provide ample overflow volume to pass storm flows without endangering the earth embankment. This recommendation has been made in the past and the Owner

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CD - Southwick  
Nov. 16, 1960.

has not as yet taken any steps to construct a larger spillway. In general, conditions at the dam have improved in that little or no debris was evident in the spillway and evidence of maintenance was noted.

D. Dr. Logie Upper Dam

The embankment of this dam is in good condition. Seepage at the toe of the dam was about the same as noted in previous years. The spillway channel has been cleared and cleaned. It is fairly well shaped and in good condition.

E. Helliwell Dam

This dam is in the same general condition as reported last year. Seepage was noted thru the masonry, at the right of the spillway. This seepage is not serious and will not affect the safety of the structure. Stone masonry at the right bank of the stream, just below the dam, is failing. This does not endanger the dam, since the masonry is independent of the structure. This condition was reported to the Owner a year ago so that he could take steps to do preventive maintenance, if he so desired. No such maintenance has been done during the past year.

F. Fletcher Dam (Congamond Lakes Southern Dike)

The embankment at this dike is in good condition. The sod is thick and satisfactory.

G. Fletcher Dam (Congamond Lakes Outlet)

This structure was found to be in good condition. One stop log was noted in place in each of the two waterways. This is the same condition noted during the annual inspection of last year.

H. Congamond Lakes North Dike

This dike was found to be in satisfactory condition. Erosion noted in the past has not become any worse and stabilization has taken place in the various small gulleys that were forming due to surface runoff. The road leading to the top of the dike does not now contribute much water to the surface of the earth dike. At some future date, sodding and erosion control may be needed. However, as of now, though little or no vegetation grows on the dike, the structure is satisfactory.

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### I. Reinart Pond Dam

This small dam was found to be in a rather dilapidated condition but it does not endanger persons and property downstream. The pond formed is very small in size and is shallow. General conditions are the same as noted when the dam was inspected in 1959.

### J. Fletcher Dam on Great Brook

This dam has been abandoned for a number of years and the breach reported in previous years, at about the center of the spillway section, has become wider and deeper. The opening and deepening of the breach is caused by the flow of the brook thru the breach. Hardly any water is now ponded upstream of the dam at normal stream flow conditions. In time of extreme runoff, a small pond would be formed. Within the next few years the breach will become wider and deeper so that eventually little or no water will be stored, even in time of heavy runoff conditions. The dam is made of cement masonry and dry stone masonry. Thus, the widening and deepening of the breach continues steadily but at a slow rate. The dam, as existing, presents no danger to persons and property downstream.

### K. Hathaway & Steane Co. Dam #1

When last inspected the pond at this dam was found to be almost empty. Only one flashboard was in the spillway and the embankment itself was found to be well shaped with erosion conditions previously reported, corrected.

### L. Hathaway & Steane Co. Dam #2

Three or four stoplogs were noted in the spillway outlet, thus causing the formation of a small pond. The embankment has been improved and raised by the placing of a sandy gravel over a portion of the dam. Little or no sod cover grows on the dam embankment. It would be advisable for the Owner to remove all stop logs from the culvert spillway inlets until after Spring runoff conditions pass.

### M. Hathaway & Steane Co. Dam #3

This small dam embankment has been fairly well cleared of brush growth and was easily accessible for inspection. The condition of the embankment is better than that noted in

# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

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previous years. The embankment is quite low and forms a small pond hardly any deeper than a shallow swamp. The spillway notch at the brook, to the left of the embankment is fairly well cleared of any growth and passes the flow from the small pond formed by the shallow earth dam. Loss of this dam, in time of extreme runoff conditions, is almost impossible because of its shallow height and relatively wide width. Conditions at this dam are satisfactory.

N. Hathaway & Steane Slab Brook Dam - Dam #4

This dam is apparently now owned by Basil Tysz, of North Longyard Road, in Southwick. The dam is in the same general condition as noted previously. The spillway inlet is blocked with debris and a steel barrel. The spillway should be kept clear of debris, if overtopping and breaching of the earth embankment is to be prevented. The embankment section of this small dam is in fairly good condition.

O. Hathaway & Steane Slab Brook Dams #5 and #6

These are two dams situated on Slab Brook, just east of Tannery Road and south of Sam West Road. They are apparently used to form small ponds to provide water for irrigation purposes. Each dam is about 100 ft. long, 5 ft. in height and impounds from one-half million gallons to two-thirds of a million gallons. The drainage area to each of these two ponds is less than a square mile. If the ponds formed by the dams were filled with water, to the top of the earth embankments, it is possible that the ponds would retain a million gallons of water and thus the structures involved are borderline cases and will be inspected annually to be certain that they are in relatively good condition. The width of each of the two dam embankments varies but, in general is from 10 ft. to 12 ft. wide. Spillways are of the tube type, with drop inlets constructed of masonry. When last inspected both of these dams were in satisfactory condition.

P. Cass Dam

This structure is still breached and no pond is formed. The dam has been breached for many years and the opening thru the small embankment is wide enough and deep enough to pass storm flows.

Q. Lake George Sportsmens' Club Dams


These dams are two small earth embankments, situated to the side of a small brook tributary to Munn Brook, at a point

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just south of the Westfield City line. Each pond contains less than a million gallons of water and because of the fact that they are pipe fed and not formed by dam embankments directly in the brook itself, they do not come under County jurisdiction. They are inspected annually, however, to be certain that no changes are made that would result in these structures coming under County control.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Southwick  
Sept. 7, 1961

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Massachusetts

Gentlemen:

Inspections carried on to date, within the Town of Southwick, have now resulted in all dams in that community having been examined at least once during the year 1961. The following is a report on the general condition of all of the dams situated in Southwick:

A. Kellogg Dam

This dam is still breached and is in the same general condition as previously reported. No water is stored whatsoever and the pond area is very thickly overgrown with trees and brush. The dam has been breached for many years and the breach thru the structure is wide enough to pass flood flows. It is doubtful if this dam will be restored in the near future. The structure is inspected annually, to be certain that it is not reactivated without first obtaining County approval.

B. Dr. Logie Lower Dam

Brush should be cut from the upstream face of the dam embankment. Logs, boards and miscellaneous debris in the spillway culvert should be removed and the spillway structure maintained in a clean condition. This dam is still in need of increased spillway capacity and the Owner should give consideration to constructing a larger spillway in the near future.

C. Dr. Logie Upper Dam

The embankment at this dam was found to be in satisfactory condition. Seepage noted thru the toe of the dam in the past has been reduced to a negligible amount. A roadway bridge has been constructed across



the spillway channel at about the centerline of the dam embankment. The opening under the concrete bridge deck is about 30-inches high and 15 ft. wide. Nothing should be done to reduce the size of this opening. This is about the smallest opening that can safely pass anticipated flood flows.

A preliminary examination of the bridge would indicate the structure may be quite limited in capacity and it may be subject to a considerable amount of maintenance.

D. Ahrens Dam (Formerly Helliwell)

This dam is in the same general condition as reported a year ago. It is now owned by a Mr. Bernard Ahrens of Suffield, Conn. At the time of the last inspection, the pond was almost dry due to low flow of the brook. The dam abutment areas and the spillway masonry were found to be in satisfactory condition. At the right bank, just downstream of the dam, masonry retaining wall construction has failed. However, as existing, this failure does not endanger the dam itself and conditions of the structure are, for the present, satisfactory.

E. Fletcher Dam (Congamond Lakes Southern Dike)

The embankment at this dike was found to be in very good condition. The sod is thick and the shape satisfactory.

F. Fletcher Dam (Congamond Lakes Outlet)

The outlet control works were found to be in good condition. One stop-log was noted in place in each of the two outlets. This is the same condition noted during the annual inspection of last year.

G. Congamond Lakes North Dike

This dike was found to be in satisfactory condition. Some vegetation is beginning to grow on the portion of the dike well back and up from the edge of the water. Small amounts of erosion were noted from surface wash flowing off across the dike. This erosion is minor in nature and can be disregarded for the time being.

H. Reinart Pond Dam

This small insignificant body of water is about abandoned and is of no

importance in connection with flood flows. The drainage area is small, the amount of water stored is insignificant and the height of the dam is much under 10 ft. Conditions at this dam have not changed for years and there seems to be no further need for inspections at the site of this structure. It does not now come under County jurisdiction and it is doubtful if any change will ever be made whereby the dam could store enough water to exceed one million gallons in capacity.

I. Fletcher Dam on Great Brook

This dam is in the same general condition as reported a year ago. However, the breach thru the dam is becoming wider and deeper. In fact, the bottom of the breach is now almost down to the bed of the brook so that during normal brook flow, no water whatsoever is ponded. Water erosion has washed out many of the individual pieces of stone forming the embankment and consequently, at the right of the breach, it can be expected that further water action during Fall and Spring runoff conditions will greatly widen the breach. With each passing year and the further widening of the breach, the effect of the dam on storing water becomes less and less important. Inspections will be made for the next two years at the site of this dam. It would be expected that in two or three years the breach will have been washed so wide that little trace of the dam will then remain.

J. Hathaway & Steane Co. Dam #1

This dam was found to be in satisfactory condition. It was active and nearly full to the top of the stop planks in the spillway structure. The embankment was in good condition and no erosion has been taking place. Both spillway inlet and tube were clear of any debris and were functioning well.

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K. Hathaway & Steans Co. Dam #2

The embankment at this dam has been raised and improved by the placing of sandy gravel over a portion of the dam. Little or no sod cover grows on the dam embankment. This condition was pointed out a year ago. A slight amount of erosion has taken place on the new fill. However, it would appear that additional fill has been added and surface water wash will not now flow onto the top of the dam embankment from the side hill. The condition is not dangerous and is satisfactory. The spillway inlet and the spillway tube itself were found to be in good condition and no debris blocked the structure. At the time of the last inspection the pond was very nearly full and was in active use.

L. Hathaway & Steane Co. Dam #3

This dam was found to be in satisfactory condition. It is about the same as reported in previous years. The dam is insignificant in height, being only about 24-inches above natural ground level and the water stored behind this shallow dam is in a swampy depression. The water stored therein does not present any danger to persons and property downstream. Conditions at this dam are satisfactory.

M. Basil Tysz Dam (Hathaway & Steane Slab Brook Dam #4

This structure was in the same general condition as noted previously. Debris was found to be in the spillway inlet and this should be removed. Brush growth on the embankment was so thick, both at the spillway inlet and on the downstream side of the embankment that a proper inspection of this structure was very difficult. The Owner should be advised to keep all brush cut back and the dam free from growth of this nature.

N. Hathaway & Steane Slab Brook Dam #5

The embankment at this dam was found to be in satisfactory condition. The spillway tube inlet is partly blocked with logs, boards and debris. These should be removed and the spillway kept free of such materials. Otherwise, the structure as a whole was found to be in acceptable condition.

O. Hathaway & Steane Slab Brook Dam #6

The spillway and the embankment at this dam were found to be in good condition. A fairly good growth of vegetation has taken place on the earth embankment.

P. Cass Dam

This structure is still breached and no pond is formed. The dam has been breached for many years and the opening thru the embankment is wide enough to pass flood flows. Since little or no evidence of the dam now remains and since it has been abandoned and breached for so many years, future inspections at the site of this abandoned dam are now no longer necessary.

Q. Lake George Sportsmens' Club Dams

These two small dams were in the same general condition as reported a year ago. They are both off to the side of the main brook and the upper dam is pipe fed from the brook. Water overflowing from the upper dam flows to the pond formed by the lower dam. Each pond contains less than a million gallons of water and because these ponds are pipe fed, are small in size and the dams are much less than 10 ft. in height, these structures do not now come under County jurisdiction. They are inspected annually, however, to be certain that no changes are made whereby the structures would come under County control.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Southwick  
Oct. 3, 1962.

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections carried on to date, throughout the Town of Southwick, have now resulted in all dams situated in that community having been examined at least once during the year 1962. The following is a report on the general condition of all of the dams located in Southwick:

A. Kellogg Dam

This dam has been breached for some time and is in the same general condition as noted previously. No water is stored whatsoever and the pond area is becoming overgrown thickly with brush and trees. The undersigned discussed the dam with the Owner and it is doubtful if he will ever reconstruct the structure.

B. Dr. Logie Lower Dam

The embankment at this dam should be cleared of all brush and small tree growth. A good growth of turf should be promoted on the dam. The spillway culvert thru the embankment of the dam should be cleared of all debris.

The capacity of the spillway at this dam is not large enough to serve the drainage area involved. As pointed out in previous years, the spillway capacity should be increased, either by enlarging the existing spillway or constructing a suitably large swale spillway around the end of the dam on natural ground.

C. Dr. Logie Upper Dam

The embankment at this dam was found to be in satisfactory condition.

A paved roadway has been built across the top of the embankment leading to a proposed development on property of the Owner, to the left of the dam and pond. As the result of constructing the roadway, the embankment has been improved.

The spillway bridge noted last year has been completed and the opening of the bridge remains at about 30" high and 15 ft. wide. The undersigned met Dr. Logie at the site of the dam during the inspection and called his attention to the fact that the opening under the roadway bridge across the spillway should be maintained clean and clear of any debris.

It was noted that the steel of the concrete bridge is exposed in part underneath the bridge. This condition was also pointed out to Dr. Logie, with the advice that the steel be cleaned frequently and painted to prevent any deterioration of the supporting metal.

At the time of the inspection, the pond was noted to be down quite a bit from the level of the spillway. This is due to the lack of brook flow, evaporation and normal seepage. The toe of the dam embankment showed no major evidence of any seepage this year.

D. Ahrens Dam

The embankment at this dam was found to be satisfactory. The stone wall on the right of the spillway downstream thereof is still in need of repair. The condition of this wall does not endanger the dam. The masonry of the structure itself was found to be satisfactory. Flashboards were still in place in the spillway opening and the undersigned removed one large flashboard from the opening during the inspection. Water level in the pond was quite low because of the recent past extremely dry weather.

E. Fletcher Dam (Congamond Lakes Southern Dike)

The dike embankment was found to be in very good condition. It was well shaped and a good growth of sod covered the structure.

F. Fletcher Dam (Congamond Lakes Outlet)

The outlet structure was found to be in satisfactory condition. However, a log timber about 8" wide by 12" high was noted in the opening of each section of the outlet. In the past, these two log timbers have not been noted. They will apparently result in a higher water level of the lake during wet weather times. The outlet is apparently under control of

the Town and it is assumed that the Town has placed the wooden heavy stop logs into the stop log guides. Evidence along the shore of Congamond Lakes and high water marks on masonry indicate that the stop logs were in place during the past Summer and the lakes operated at the slightly higher level than has been experienced in the past. No complaints of high water have been received during the past year at this office and consequently the undersigned assumes that the water level as controlled by the new stop logs is acceptable to all concerned. The stop logs do not endanger persons and property.

G. Congamond Lakes North Dike

This dike was found to be in satisfactory condition. There was no evidence of erosion on the large dike embankment nor any indication of surface wash due to precipitation runoff. The embankment was noted to be stable and reasonably well maintained. The embankment is not well sodded. Use of the embankment area for access to the lake, plus the fact that the soil is quite sandy, prevents a complete sod cover.

H. Fletcher Dam on Great Brook

The breach at this dam is becoming wider and deeper with each passing year. Less and less of the old dam remains and the depth of the breach is now almost to the bed of the brook. Very little water normally is ponded and even in time of high storm runoff, there would be only a small amount of water stored. Since the breach thru the dam could still be plugged fairly easily, inspections will be continued for the next few years. It is expected however, that after that time the breach will be so wide that there will be little need for an annual check of the old dam site.

I. Hathaway & Steans Co. Dam #1

The embankment of this dam was found to be OK. It is somewhat rough in shape but suitable in condition. The spillway inlet structure was found to be in good condition. No stop logs were in place and the pond was empty.

J. Hathaway & Steans Co. Dam #2

The embankment of this structure was found to be in satisfactory condition. The spillway inlet in the tube thru the dam was OK. Some stop log boards were still in place in the spillway inlet but the pond formed is only about one-half the volume of the normal pond. Apparently the pond is partly drawn down for the Winter.



K. Hathaway & Steane Co. Dam #3

This dam was found to be in satisfactory condition. The embankment section is overgrown with brush but the dam is so low in height and stores such a small quantity of water, it does not endanger persons and property downstream, even though it is not well maintained. No water whatsoever was found stored behind the dam. The dry Summer has resulted in the pond becoming completely empty.

L. Basil Tysz Dam (Hathaway & Steane Slab Brook Dam #4)

The shape of the embankment at this dam was found to be satisfactory but, the embankment was fairly well covered with brush. It was difficult to examine the entire embankment. The brush should be cut and kept cut. Logs and planks noted in the spillway inlet should be removed and the spillway maintained free and clear of debris.

M. Hathaway & Steane Slab Brook Dam #5

The embankment at this dam was found to be in satisfactory condition but brush should be cut. Debris should be removed from the inlet of the spillway structure. At the time of examination the pond was found full and stop logs were in place to their maximum height in the spillway inlet.

N. Hathaway & Steane Slab Brook Dam #6

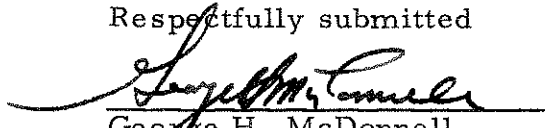
The embankment was found to be satisfactory as to shape and general maintenance but, it should be brushed and cleared of all small tree growth. The spillway inlet was OK and the pond was found to be full.

O. Lake George Sportsmens' Club Dams

The two small dams at this site are in the same general condition as reported previously. They are both off to the side of the main brook and are pipe fed. The dams as existing do not come under County jurisdiction. They are inspected annually however to be certain that no changes are made whereby the structures would come under County control.

GHM/cmb

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

***CONSULTING ENGINEERS***

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Southwick  
Oct. 25, 1963

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections carried on to date, throughout the Town of Southwick, have now resulted in all dams situated in that community having been examined at least once during the year 1963. The following is a report on the general condition of each dam located in Southwick.

A. Kellogg Dam

This dam, breached for many years, is still inactive and there is no evidence in the field that the structure will be reconstructed in the future.

B. Irving Kimball Dam (Formerly Dr. Logie Lower Dam)

The embankment at this dam is in fair condition but contains little turf and grass growth. However, it is well shaped. The spillway was noted to be partly plugged with debris and this material was removed. To protect the dam from a possible washout at flood flow time, an additional spillway should be constructed or the present spillway enlarged. Recommendations for this construction have been made in the past. Loss of the dam, however, would probably do no damage downstream. Any breaching of the embankment would be relatively slow and a short distance below the dam there exists a sizeable highway fill with a culvert thru the embankment. Released water would be impounded by the highway fill and though some water might reach the crest of the highway and flow across the roadway, this condition would be short lived as the result of the release of ponded water. Any continuation of flood flow over

the highway would, in the opinion of the undersigned, be more directly related to culvert capacity being exceeded by drainage area runoff and not as the result of water released from the shallow pond.

C. Dr. Logie Upper Dam

The embankment of this dam was in good condition. It is quite wide for its height. There is no evidence of settlement on the road surface that now crosses the embankment and leads to a proposed housing development. The faces of the embankment are beginning to become brush covered but, brush growth is not yet thick enough to require removal. The spillway channel under the roadway bridge was clean and clear. Water level in storage was down about 2 ft. from the crest of the spillway. No toe seepage of any consequence was noted.

D. Ahrens Dam

The masonry at this dam embankment wall was found to be good. Spillway concrete needs some attention but the spalling and erosion is not bad enough yet to require a directive that the work be done. The earth embankment section is OK and no settlement or irregularities were noted. The stone wingwall downstream of the dam and to the right of stream, still remains unchanged with the void in the wall caused by slippage of some of the stones. This condition does not affect the safety of the dam. Water level in storage is down about 2 ft. below the crest of the flashboards and the undersigned removed one flashboard from the spillway notch at the time of inspection.

E. Fletcher Dam (Congamond Lakes South Dike)

This earth embankment was found to be well shaped and covered with a good growth of sod. The top surface has been kept well trimmed and the structure was considered in very good condition.

F. Fletcher Dam (Congamond Lakes Outlet)

This masonry structure was in good condition. In the stoplog guides it was noted that there exists again this year, a 12" wide by 8" high wooden log. Water level at the time of inspection was at the lower edge of the log but shoreline markings indicated that throughout the Summer, water level was probably at the top of the stoplog.

This outlet structure is apparently under control of the Town of Southwick and it is assumed that the Town now operates the outlet with the heavy stoplogs in the stoplog guides.

G. Congamond Lakes North Dike

This structure was found to be satisfactory. It is a bit rough in the section towards the lake and a bit rutted from surface water wash. However, the dike was considered stable and safe. The dike embankment, built with a very sandy material, contains little or no turf.

H. Fletcher Dam on Great Brook

This structure, breached for some time, still remains breached and very little water is stored. The breach is wide enough and deep enough to safely pass storm flow. It is expected that this breach will become wider and deeper with the passing of time and the erosion effect of flood flow runoff taking place annually thru the breach.

I. Hathaway & Steane Co. Dam #1

The embankment of this dam was in very good condition. It is well shaped and is clear of brush. All stoplogs were out of the spillway inlet structure and the pond was empty. The spillway tube and the masonry inlet were in satisfactory condition.

J. Hathaway & Steane Co. Dam #2

The embankment of this dam was found to be in good condition and the structure well shaped. It was noted to be free of brush. Stoplogs were out of the inlet structure and the pond was empty. The spillway inlet structure and the spillway tube thru the embankment were both OK.

K. Hathaway & Steane Co. Dam #3

No water was stored by this structure. The dry weather has apparently resulted in this body of water completely drying up. The small earth dam embankment forming the pond is rough in shape but is safe. It is fairly wide for its small height. The dam was considered satisfactory when inspected.

L. Basil Tysz Dam (Hathaway & Steane Slab Brook Dam #4)

Brush on the embankment, particularly the upstream and downstream face should all be cut down. Sticks and boards in the spillway inlet should be removed to prevent plugging of the spillway facility.

M. Hathaway & Steane Slab Brook Dam #5

The embankment should be cleared of brush and all small tree growth. The spillway tube inlet is partly blocked with a broken slab of concrete that should be removed. The spillway inlet structure masonry is in need of repair. This work should be done within the next 6 months.

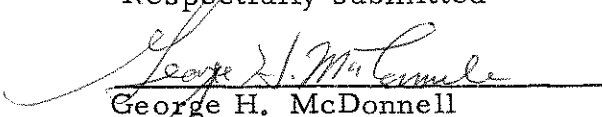
N. Hathaway & Steane Slab Brook Dam #6

The embankment at this dam was satisfactory and covered with a reasonably good growth of turf. One-half of the stoplogs were out of the spillway inlet. The spillway tube was clear of any debris and no toe seepage was noted. The dam was considered safe when checked.

O. Lake George Sportsmens' Club Dams

These two small dams do not come under County jurisdiction as of the present time. They are both off to the side of the main brook and are pipe fed by diversion work. The structures are inspected annually, however, to be certain that no changes are made whereby the dams would come under County control. The main dam was found to be in good condition and the spillway inlet screen was clean and clear of any debris. The spillway operated satisfactorily.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991  
CD Southwick  
October 13, 1964

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on to date within the Town of Southwick have now resulted in all dams situated in that community having been examined at least once during the year 1964. The following is a report on the general condition of each dam located in Southwick.

A. Kellogg Dam

This dam is still breached and inactive. The breach is wide and deep and can safely pass flood flows. The dam has been breached for quite some time and the pond area is becoming heavily overgrown with trees and brush. While at the site of the dam, the undersigned discussed the possible future use of this dam with personnel at the office of Kellogg Bros., Inc., and found that there will probably be no restoration of the dam by the present owners in the future.

The site will be checked for a few more years and then if no development of the general area and reconstruction of the dam takes place, a recommendation will be made to drop the site from the inspection list.

B. Irving Kimball Dam (Formerly Dr. Logie Lower Dam)

The spillway of this structure should be cleared of debris and kept clean at all times. Additional spillway capacity should be provided by either constructing an around-the-end paved swale spillway or thru the construction of a masonry spillway in the dam embankment itself.

As pointed out in previous reports, loss of the dam would probably do

no material damage downstream. Any breaching of the embankment would be relatively slow. A short distance below the dam there exists a sizeable highway fill with a culvert thru the embankment. Water released by a breach in this Dam would be impounded by the highway fill and though some water might reach the top of the highway fill and flow across the roadway, this condition would be short lived. Any continuation of flood flow over and across the highway would undoubtedly be more directly related to culvert capacity being exceeded by drainage area runoff.

The owner of the dam was advised of the desirability of increasing the spillway capacity. It is recommended that another notice be sent to him advising him of the need for a larger spillway if the dam embankment is to be protected in time of flood flow.

C. Dr. Logie Upper Dam

The embankment of this dam was found to be in relatively good condition with the exception of the fact that brush growth is becoming quite thick on both the upstream and the downstream slope. All brush, particularly on the downstream slope and at the toe of the dam, should be cut down and kept cut down so that proper examinations of the dam embankment can be made. There was no evidence of settlement on the road surface that crosses the embankment. On the day of inspection, it was noted that the pond elevation was down 4 feet more or less from the floor elevation of the spillway channel. The spillway channel was clean and clear of debris. The area under the bridge was satisfactory.

D. Ahrens Dam

This dam was in the same general condition as reported in 1963. The masonry wall on the downstream face of the embankment was in good condition. The top of the embankment was satisfactory and the stone paving together with the turf cover was satisfactory. The erosion in the spillway concrete was no worse than previously reported and as yet repairs are not absolutely necessary.

The stone wingwall downstream of the dam and to the right of this structure has become more dilapidated and the void originally noted has become larger. This condition does not affect the safety of the dam. No water was in storage on the day of inspection. No flow took place in the small brook.



E. Fletcher Dam (Congamond Lakes South Dike)

This earth embankment was found to be in very good condition. It is well shaped and covered with a fairly good growth of turf. No erosion was noted on either slope of the dike nor on the top. The top of the dike is kept well trimmed.

F. Fletcher Dam (Congamond Lakes Outlet)

The masonry of this structure was found to be in very good condition. The 12" wide by 8" high wooden stoplogs noted in each of the openings of the outlet previously were still in place. Water level at the time of inspection was at the lower edge of the stoplogs. However, shoreline markings indicate that throughout the Spring and Summer seasons, water level was probably at and slightly above the top of the stoplog in each section of the outlet opening.

G. Congamond Lakes North Dike

This structure was found to be okay. It is still a bit rough and gullied, particularly on the water side slope but the condition is not bad. On top of the dike there is a cover of poor turf over part of the structure. The remainder of the surface of the dike is either sand or packed earth with no grass growth whatsoever. In the opinion of the undersigned the dike is stable and safe.

H. Fletcher Dam on Great Brook

This structure, breached in part for some time, still remains breached and very little water is stored behind the dam. The breach is wider and deeper than noted previously. The breach will increase in size with the passing of time and eventually the major part of the dam will be washed away as the result of annual Spring flood flows and normal weathering conditions. The breach thru the dam can safely pass flood flows without ponding water.

I. Hathaway & Steane Co. Dam #1

The embankment at this dam is in fair condition but needs brushing and clearing of all weed and miscellaneous growth. The owner should develop a good growth of turf on the dam embankment. On the day of inspection, the pond was empty and no stoplogs were in the slots of the

spillway intake structure. The tube thru the dam was in satisfactory condition.

J. Hathaway & Steane Co. Dam #2

This pond was found to be empty and no flashboards were in the slots of the spillway intake structure. The tube thru the dam was in satisfactory condition. However, the dam is in need of brushing and the owner should develop a good growth of turf on the surface and the slopes of the dam embankment.

K. Hathaway & Steane Co. Dam #3

The outlet at this dam is the small brook that discharges from the pond, thru golf course property, at the left of the ridge of earth that forms the embankment of the dam. The entire area of the embankment and the brook outlet is heavily overgrown with brush. The small embankment that forms the dam is very low in height and quite wide. Storm flow could overflow this embankment without doing any damage. However, it would seem advisable for the owner to keep the general area clear of brush so that any needed maintenance to protect the small embankment and guarantee water storage could be noted at an early date.

L. Basil Tysz Dam

Sticks and boards in the spillway inlet shaft should be removed and all debris kept out of the structure. All of the small tree and brush growth on the dam embankment, both on the surface of the pond side slope and on the surface of the downstream slope, should be kept cut and a good growth of turf promoted. On the day of inspection, water level in storage was at the crest of the upper stoplog in the spillway structure. The elevation of the upper stoplog was about 24" down from the top of the concrete inlet structure.

Because the brush growth on the dam, particularly on the downstream face, was so thick it was difficult to inspect the dam and take note of conditions along the toe, at the spillway tube outlet and on the surface of the slope of the embankment itself.

M. General Cigar Corporation Lower Dam

The spillway inlet structure was found to be in fair condition. The

crest of the upper stoplog was at an elevation about 6" below the top of the concrete of the inlet structure. Water level in storage was at the top of the upper stoplog board. The spillway tube was in satisfactory condition. All brush should be cut from the dam embankment and a good growth of turf promoted.

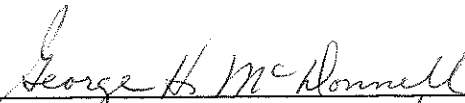
N. General Cigar Corporation Upper Dam

All debris should be removed from the spillway inlet box. Repairs should be made to the concrete of this structure. All brush and small tree growth should be removed from the dam embankment. On the day of inspection, the stoplogs in the spillway structure were set whereby the elevation of the upper stoplog was about 18" below the top of the concrete inlet structure. Water level in storage was at the elevation of the top stoplog.

O. Lake George Sportsmens' Club Dams

These two small dams still do not come under County jurisdiction as of the time of the last inspection. They are both situated off to the side of the main brook and are pipe fed by diversion facilities. The structures are inspected annually, however, to be certain that no changes are made whereby the dams would come under the jurisdiction of the County. At the main pond, water level was found to be at the crest of the shaft spillway. The water was very clear and a good flow was taking place thru the pond. In general, the structures were in satisfactory condition.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mg

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Southwick  
May 9, 1966

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections have been made of the dams located within the Town of Southwick. All dams within that community have now been examined at least once during the year 1966. The following is a report on the general condition of each dam situated within Southwick.

A. Kellogg Dam

This dam is still breached and is inactive. The breach is wide, deep and can safely pass flood flows. The dam has been breached for many years and the pond area is now heavily overgrown with small trees and brush.

The undersigned discussed this structure with personnel in the office of Kellogg Bros., Inc. and was informed that the dam will probably never be reactivated.

Since this dam has been breached for many years, since there is little evidence of the dam now remaining at the site of the structure, it is recommended that this dam site be dropped from the inspection routine.

B. Irving Kimball Dam (formerly Dr. Logie Lower Dam)

Brush growth is becoming quite thick on the earth embankment of this dam. The brush should be cut down and a good growth of turf should be developed over the entire surface of the earth embankment. Logs and debris lodged in the small spillway channel should be removed and the spillway opening kept cleared. The owner of the dam should provide improved and increased spillway capacity at this small dam. No toe seepage was noted along the downstream edge of the embankment.

C. Dr. Logie Upper Dam

The embankment of this dam has been altered by the addition of a raised asphalt sidewalk built along the length of the dam embankment and at the top downstream edge of the structure. The dam embankment has been widened somewhat to provide for the sidewalk construction by filling the downstream face of the embankment with gravel.

The paved road surface across the top of the embankment was found to be okay. A catchbasin has been added at about the center of the dam to drain surface water which would be trapped by the raised sidewalk construction. The discharge pipe from the catchbasin terminates at the downstream face of the dam. There is only slight evidence of erosion. Should erosion become serious in the future, a recommendation will be made to extend the pipeline down the face of the embankment or to construct a paved gutter to handle the surface water discharge.

The spillway channel was found to be okay and no debris was lodged under the spillway bridge. Water level in storage in the pond was at the crest of the spillway channel.

At the toe of the earth embankment, considerable seepage was noted. This dam was reconstructed following the flood of August, 1955, with a high percentage of rather pervious material and the downstream toe contains a considerable quantity of boulder fill. The undersigned would expect that seepage will be ever present at the dam but because of the heavy boulder downstream toe, the seepage will probably never endanger the safety of the structure. Seepage is always clear water and no fines have ever been observed being washed along with the seepage water.

A new small dam and pond have been constructed to the left of the dam and immediately downstream thereof. A small earth embankment with a pipe spillway and pipe shaft have been constructed in a small local valley which drains to the main stream just below the dam.

This new small body of water contains only about one-half million gallons, has a negligible drainage area and the height of the dam above natural ground is only about 9 ft. As a result, this new dam does not come under County jurisdiction. Loss of the dam and sudden release of the small quantity of water stored would do no damage to persons or private property downstream.

D. Ahrens Dam

This small dam was noted to be in the same general condition as observed in 1964. The top of the embankment was found to be satisfactory. The concrete grouted cobblestone paving and turf surface were both good. The upstream stone wall, though rough, was found to be okay.

The concrete spillway is deteriorating but as yet, erosion of the concrete is not bad enough to require attention. On the day of inspection, water level in storage was at the crest of the upper stop log in the spillway opening.

The downstream high stone masonry wall was noted to be in reasonably good condition and very little seepage was observed emerging from the wall.

Downstream of the dam on the right bank, the stone masonry training wall has become more dilapidated but the condition does not affect the safety of the dam in any way whatsoever.

E. Fletcher Dam (Congamond Lakes South Dike)

The earth embankment forming this dike was found to be in very good condition. The embankment is well shaped and was noted to be covered with a good and thick growth of turf. No erosion was noted anywhere on the structure.

F. Fletcher Dam (Congamond Lakes Outlet)

The concrete masonry of the double culvert forming the outlet to Congamond Lakes was found to be in good condition. One stop log 8" x 12" in size was found to be in place in each of the two sections of the culvert. Normally, one stoplog is kept in place in each side of the structure. Water level was noted to be about half way up on the stoplog.

G. Congamond Lakes North Dike

This dike was found to be satisfactory. Though the surface of the dike has very little sod and grass growth, there is very little evidence of erosion. The surface of this dike is almost entirely sand and gravel. A road has been built down onto the dike from adjacent developed

property and the dike area appears to be in use for boating and recreational purposes. The dike is very wide for its height. The structure was deemed satisfactory in every way when inspected.

H. Fletcher Dam on Great Brook

This structure has been breached for a number of years and the breach has become wider and deeper with the passing of time. The breach is now wide enough and deep enough to pass the flow of the stream without ponding water. The earth embankment section of the dam still stands but flood flows pass around the embankment to the right thru the breach in the old stone fill, concrete masonry paved spillway.

The old canal leading around the dam is being filled in with trash and rubbish and there is little evidence that the dam will ever be activated in the future. The site will be inspected once again either in 1967 or 1968 and, if at that time there is no evidence of the structure being reactivated, a recommendation will be made that the dam be dropped from the inspection list.

I. Hathaway & Steane Co. Dam #1

This dam was found to be in satisfactory condition. The turf growth has been improved and brush has been cut from the embankment. The toe area was found to be satisfactory. The spillway tube thru the embankment was in good condition and contained no debris. Stoplogs were in place in the inlet structure. Water level in storage was about 12" below the upper edge of the top stoplog. The dam was considered satisfactory when inspected.

J. Hathaway & Steane Co. Dam #2

The upstream face and the top of the embankment were found to be satisfactory. The downstream face of the embankment should be cleared of all brush and a cavity formed in the downstream face at about the center section of the dam should be repaired by being filled in with well compacted soil. The toe area of the dam was okay. The spillway tube and inlet structure were found to be satisfactory and water level in storage was at the elevation of the top stoplog.

K. Hathaway & Steane Co. Dam #3

The embankment of this small dam was noted to be very rough in shape



but the structure is quite wide in comparison to its low height. Brush has been cut from the embankment. The spillway channel outlet was satisfactory. It was clear of brush and debris. Water level in storage was at the elevation of the small spillway channel.

L. Hathaway & Steane Co. Farm Pond Dam

Construction of this dam has, for all practical purposes, been completed. The embankment is reasonably well shaped but the owner should promote a good growth of turf over both the upstream and downstream face of the embankment. The top of the dam should be graveled to a depth of about one foot.

The spillway shaft was satisfactory and water level in storage was at the crest of the upper stoplog.

The swale spillway to the left of the embankment has been built as per the plans but the entire spillway area should have a good growth of turf developed except at the point where the roadway crosses the emergency spillway. Here, compacted gravel should be placed.

Some seepage was noted at the toe of the dam and, natural ground just below the dam was found to be soft and spongy. This area should be observed from time to time and stone fill placed at the toe of the dam for stabilization purposes if necessary.

M. Basil Tysz Dam

This dam was noted to be in the best condition observed in recent years. The concrete inlet shaft was free and clear of any debris. Stoplogs were in place and water level in storage was about 18" below the crest of the upper stoplog. The dam embankment was fairly free of any brush growth. Both surfaces and the top of the embankment were okay. No toe seepage was noted at the downstream toe. The corrugated iron spillway tube was clear and free of debris, was well aligned and satisfactory.

N. General Cigar Corporation Lower Dam

This dam has been improved since the time of the last inspection. Brush has been cut and a new inlet spillway shaft structure of corrugated iron has been installed. The swale spillway just situated to the left of the dam has been roughly shaped. It should be provided with a good

growth of turf in order to control erosion in time of storm water overflow. The toe area of the dam was good. Some seepage occurs about 10 ft. to the left of the discharge pipe outlet. This seepage should be observed from time to time to be certain that it does not increase nor carry fine grained soils with the flow.

A stoplog was noted down in the spillway inlet shaft and this should be removed.

The owner should promote a good growth of turf over the entire embankment.

O. General Cigar Corporation Upper Dam

A new spillway tube of corrugated iron together with vertical inlet shaft has been installed. The embankment of the dam was satisfactory and appears to have been widened somewhat. It may have also been raised a little. No brush was growing on the embankment. At the time of the inspection, water level was within 2" of the top of the upper stoplog in the corrugated iron shaft spillway.

A plank was noted down in the shaft of the spillway inlet and this plank should be removed. The owner should develop a good growth of turf over the entire dam embankment.

P. Lake George Sportsmens' Club Dams

These dams were in the same general condition as previously noted. The two ponds formed by the dams are located off to the side of the main stream valley. The upper pond is fed by diversion of the main stream while the lower pond is fed via a small masonry chute spillway from the discharge of the upper pond.

Both embankments were found to be in good condition, sod cover was fairly thick and no sign of erosion or seepage was noted.

The flow-thru channel spillway at the upper dam and the vertical shaft pipe spillway at the lower dam were clear of debris and were operating very well.


Though a heavy stream runoff could result in water discharged to the both ponds in excess of spillway capacities, any water released as a result of overtopping and failure of either dam would return to the main stream channel across property of the owner.

**TIGHE**  
**& BOND** CONSULTING ENGINEERS

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Though both of these dams still do not come under County jurisdiction, they are examined occasionally to be certain that they are not increased in size.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mbf

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Southwick  
May 21, 1968

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

All dams situated within the Town of Southwick have now been inspected at least once during the year 1968. The following is a report on the general condition noted at each dam inspected.

A. Irving Kimball Dam

This dam is not in satisfactory condition. In the past, the owner has been advised that the dam should be properly maintained by removal of all brush growth, the promotion of a good growth of turf on the top and side slopes of the embankment, and the construction of adequate spillway facilities. None of these things have been done by the owner. In a previous conference with the owner, he indicated to the undersigned, that the dam would probably be breached so that little or no water would be stored.

It is recommended that the owner be notified to either properly maintain the dam or to breach the embankment. If the dam is to be maintained, the owner should be required to immediately remove all brush growth and to loam, seed and fertilize all surfaces of the embankment. The present spillway should be rebuilt of proper size to safely pass anticipated flood flows.

At the time of the inspection of this dam, it was noted that the embankment is covered with a thick growth of brush and small trees. The small, inadequate and dilapidated spillway is partially plugged with debris. The concrete is worn and eroded.

It is recommended that the owner be given 30 calendar days to take action relative to either properly repairing, or breaching this dam.

B. Dr. Logie Dam

Two small and poorly built catchbasins have been constructed on the top of the dam embankment. One is on each side of the roadway crossing the dam. These catchbasins are small, they have no sump and the masonry construction is such that much of the water collected will be discharged into the fill of the dam embankment. However, this condition will not endanger the dam.

The sidewalk on the downstream edge of the top of the dam embankment needs to be repaired. The sidewalk surfacing has been broken as a result of drainage construction. This area of the sidewalk is low in elevation and can probably be washed through by surface water runoff under certain conditions of storm flow.

Toe seepage was noted to be about the same as observed in the past. A sizeable amount of water seeps from the toe but no fine grained material is moving with the seepage water. The rock fill of the toe allows the seepage water to be released and this material functions to hold back the fill forming the dam embankment. The dam embankment is quite wide for its relatively low height. The top width of the embankment is about 40 feet, and side slopes, though steep, are fairly stable.

The spillway under the bridge has been extended upstream with four concrete tubes having adequate capacity to meet the anticipated flood flow requirements of the drainage area.

The loose stone fill adjacent to the edge of the first concrete tube is very steep and appears to be unstable. This stone fill should be replaced with a retaining wall either of concrete or properly laid up field stone masonry.

In the opinion of the undersigned, this dam is safe. However, the owner should follow the recommended improvements and changes so as to minimize maintenance requirements at the dam.

C. Ahrens Dam

On the day of inspection, Saturday, May 18, 1968, no water was stored by this dam. All stoplogs were out of the spillway and the

stream was running through the dried-up bed of this small pond.

The top of the dam was in satisfactory condition. The downstream stone masonry face was in fair condition. The right abutment and earth retaining wall just downstream from the dam proper continues to fail but this condition does not have any affect upon the safety of the dam.

The toe area was found to be satisfactory.

The spillway chute masonry is cracked and broken to some extent but this structure is in fair condition and is safe.

The volume of this pond is very small, being estimated at about one-third million gallons. The drainage area is small but the height of the dam is just about 10 feet from the bed of the stream. Even if this dam failed when the pond might be full, little or no damage would be done downstream. The brook valley would be able to absorb the flow.

In the opinion of the undersigned, this dam is in satisfactory condition.

D. Congamond Lakes South Dike

This dike was found to be in satisfactory condition. The sod cover is fairly good. The dike embankment is well shaped. There are a number of small trees growing on the slopes and the top edges of the embankment. These are not big enough yet to be of any concern relative to safety of the dike.

In the opinion of the undersigned, conditions at this dike are satisfactory.

E. Congamond Lakes Outlet

The outlet was in the same general condition as noted at the time of the last inspection. The structure is in good condition and is well maintained. One 8" x 12" stoplog is in each of the two bridge sections. Water overflowing the stoplogs is about 8" in depth. The distance down to the top of the stoplogs from the top of the masonry slot is about 5 ft. 6 in.

In the opinion of the undersigned, the Lakes outlet structure is in satisfactory condition.

F. Congamond Lakes North Dike

This structure was found to be in satisfactory condition. It is fairly massive and has a high freeboard above lake level. The sod cover is poor and some of the original riprap has become displaced. There is little sign of any serious erosion on the dike. Some erosion was noted but it is minor in nature and doesn't affect the safety of the structure.

The dry side of the dike is being used for dumping purposes.

In the opinion of the undersigned, the dike is satisfactory and safe.

G. Fletcher Dam on Great Brook

This dam was in the same general condition as last reported except that the breach in the stone fill and the masonry spillway appears to be a bit wider and deeper. Hardly any water is stored by this breached and old dam. Flood flows can safely pass the site of this dam.

Since this dam is no longer active and, since the breach is wide enough and deep enough to pass flood flows in a safe manner, it is recommended that the dam be dropped from County records and no further inspections be made at this location.

H. Hathaway & Steane Co. Dam #1

The embankment forming this dam was found to be satisfactory. All brush growth should be discouraged and kept cut. Particular attention should be paid to the downstream slope of the embankment and the area in the vicinity of the outlet of the discharge tube. At the time of inspection, water level was about 12" below the grade of the upper stoplog.

The fifth stoplog from the top appears to be quite weak and is bending downward as a result of the hydraulic load. This stoplog should be temporarily strengthened with a brace to prevent the possibility of a failure. Later on in the year, following the irrigation season, this stoplog should be removed and replaced with a proper timber.

The toe area of the embankment was found to be satisfactory. The area is wet, but this is the result of back-water from Dam #2 downstream.

The spillway inlet box and the spillway tube itself were found to be o.k.



I. Hathaway & Steane Co. Dam #2

This dam is located on Slab Brook just upstream from Tannery Road.

The embankment at this dam has been greatly improved since the time of the last inspection. The sod and vegetation cover is the best that has been noted in a number of years. The toe area of the embankment was in good condition. There is some small brush growth on the downstream slope and at the spillway tube outlet. This brush growth should be cut down and future growth discouraged.

Water level in storage was at the crest of the upper stoplog in the spillway. The concrete spillway inlet was noted to be o.k.

In the opinion of the undersigned, this dam is safe and is in good condition.

J. Hathaway & Steane Co. Dam #3

The body of water formed by this dam is adjacent to the golf course property near the northerly boundary line of Hathaway & Steane Co. property. Since the pond formed at this location is almost entirely in excavation and the dam is simply a dike along the right side of the brook, it is doubtful if this structure comes under County jurisdiction. The outlet is nothing more than the natural brook bed as it discharges onto golf course property. Water level is not actually raised above the natural bed of the brook course.

Conditions at this location were found to be satisfactory and the stored water does not endanger persons and property downstream. Normally it would be recommended that this location be dropped from County records. Since the site is a very short distance from Dam #1, the site is inspected during the time of the routine inspections to be certain that conditions at the dike are not altered so as to store water above the natural elevation of the brook course.

K. Hathaway & Steane Co. Farm Pond Dam

This dam, constructed about 3 years ago, appeared to be in satisfactory condition. It was noted to be well shaped, had a good turf cover and no brush growth whatsoever was observed. The gravel road extending across the top of the embankment and across the emergency swale spillway was o.k.

The spillway shaft inlet was satisfactory and water level in storage was at the top of the shaft. The toe area of the embankment was o.k. Very little seepage was noted. The toe area has been weighted with dumped cobblestone fill and the area appears to be more solid and stable than at the time of the last inspection and report.

In the opinion of the undersigned, this dam is safe and is in good condition.

L. Basil Tysz Dam

Water level in storage was noted to be at the top of the concrete spillway shaft. Stoplogs in the shaft were at the maximum allowable elevation. The shaft should be kept clear and free of all debris and logs. The shaft should be cleaned out and this material removed.

The top edges and side slopes of the dam embankment should be cleared of brush growth and a good turf developed on the embankment of the dam.

The toe area was noted to be o.k. Some seepage was observed but this was noted to be normal. The spillway tube was satisfactory. A slight bow or deflection was noted at the middle of the left side of the tube when examined from the portal. This condition is satisfactory. There is no evidence of any settlement or shifting of the soil in the embankment material.

The dam should be maintained as recommended, by cleaning all debris and logs from the spillway shaft inlet and by cutting of brush, with the promotion of turf growth.

M. General Cigar Corporation Lower Dam

The top of the earth embankment forming this dam should be graded and smoothed with compacted loam, particularly at the left end of the embankment and to the right of the emergency swale spillway. A good growth of turf should be developed over the entire embankment. Brush growth should be kept cut down. The swale spillway at the left end of the embankment should be well maintained and a good growth of turf developed in the swale.

The spillway shaft should be cleaned and cleared of all junk, debris and planks. Seepage at the toe of the dam was about normal.

The toe is soft, but no fine grained soil was moving with the seepage water. Rubbish and junk now deposited at the toe of the dam embankment should be cleared away and deposited elsewhere. The toe area should be weighted with dumped field or cobble stones.

The work as recommended hereinbefore at this Lower Dam should be accomplished in the immediate future.

N. General Cigar Corporation Upper Dam

The embankment forming this dam is in fair condition. The turf growth should be improved and all brush growing from the embankment, particularly from the downstream face, should be cut down and discouraged.

It was noted that the spillway tube is plugged and the inlet shaft is flooded. Water level in storage on the day of inspection, May 18, 1968, was at the elevation of the top of the embankment. At the left end of the embankment, stored water is seeping over the top of the dam. This condition must be corrected or an emergency swale spillway as built to the left of the Lower Dam must also be built at this Upper Dam. This dam has had a history in the past, of improper and poorly maintained spillway facilities. The problem should be corrected this year.

O. Lake George Sportsmens' Club Dams

The two dams forming the small ponds at this location still do not come under County jurisdiction. Both are fed from the brook by means of a pipe and thus, are not in the valley of the brook proper. Flood flows do not pass through these ponds but rather, flow around the ponds following the brook course.

Both embankments were found to be in satisfactory condition. Sod growth is fair to good. There was no sign of erosion or seepage at the embankments which would endanger these structures.

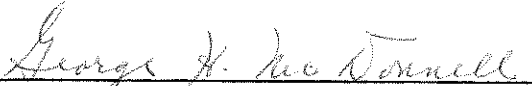
Should the small spillway at either of these two ponds become plugged and water over-top the embankment, any water released as a result of

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such overtopping and failure of either dam would return to the main-stream channel across property of the owner and would be absorbed by the channel.

Respectfully submitted,

  
\_\_\_\_\_  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Southwick  
November 20, 1969

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Every dam located within the Town of Southwick has now been inspected at least once during the year 1969. The following is a report on the general condition of each dam inspected.

A. Irving Kimball Dam

At the time of my routine inspection of dams in Southwick as reported on May 31, 1968, it was pointed out that the Kimball Dam was in poor condition and it was recommended that the owner be notified to either properly maintain the dam or to breach the embankment. The report contained a recommendation that the owner be given 30 calendar days to take action on the matter.

In a special letter-report to your Board on August 27, 1968, the undersigned pointed out that the owner of the dam previously had been in contact with me and that he had agreed to breach the dam in such a manner that flood flow water would be released from the pond without increasing the quantity of storage. My letter-report indicated that as of a follow-up inspection on August 22, 1968, a satisfactory breach had been dug thru and across the embankment of the dam just to the right of the small concrete spillway structure and that the depth of the excavation was such that the bottom of the ditch was about 4" to 6" above normal pond elevation.

At the time of my inspection this year, the undersigned observed that the breach is still wide open and is functional. On the day of inspection water was passing out of the pond thru the old small masonry spillway

conduit. However, flood flow waters had passed thru the breach earlier this year.

The breach has been widened and deepened by flood flow discharge and the erosion is working back towards the pond. In time, the erosion will reach the pond shore line and slowly the breach will be deepened so that the pond will become quite low or be completely drained of water. This action will take place slowly. Conditions in the field indicate that the dam can and will safely pass flood flows without endangering persons downstream.

B. Dr. Logie Dam

The catchbasin system which collects surface wash from the top of the dam and from the side slopes at either end of the dam, is not adequate and is poorly laid out. The catchbasins cannot properly handle heavy rates of storm runoff and there is evidence on the ground that this condition has occurred. Neither of the catchbasins have side inlets and consequently, leaves, paper, sticks, debris, etc., will plug the horizontal grate openings and as a result, surface runoff will pond on the dam and then wash over the sloping face of the dam. A more functional drainage system should be provided for the roadway crossing the top of the dam embankment.

Toe seepage was noted to be about normal. Some brush is growing at the toe and from the downstream face of the dam. This brush growth should be kept cut down and a cover of turf should be developed over the surface of the downstream slope of the embankment.

The loose stone fill adjacent to the edge of the upstream end of the first concrete tube on the left as one faces downstream is quite steep and appears to be very unstable. This fill should be replaced with either a retaining wall or a properly laid up fieldstone masonry or concrete wall.

The spillway was o.k. on the day of inspection. Water in storage was at the invert elevation of the tubes and there was no debris in the spillway tubes or under the spillway bridge.

The tree growing at the spillway inlet should be cut down. Also, the tree growing on the downstream face of the dam should be removed.

In the opinion of the undersigned, the dam is in satisfactory condition. However, it should be given better maintenance and the recommendations contained herein should be followed by the owner.

C. Ahrens Dam (D.N. Spencer, present owner)

This dam and, in particular the abutment areas, are being allowed to deteriorate. On the day of inspection stoplogs were in the slots of the spillway opening to the full normal height and water in storage was at the level of the upper stoplog. The concrete and stone masonry dam itself is in fair condition. However, evidence on the ground indicates that at some time in the not too distant past, the dam has been over-topped by flood flows and a large quantity of water has washed out soil at the left end of the masonry portion of the dam from the natural sloping ground on the left bank of the stream immediately downstream of the dam. The right abutment area just downstream of the dam is still in the same general condition as reported previously. The stone wall on the right side of the stream valley is failing and the failure appears to be extending further along the wall.

The toe area in the stream bed is satisfactory.

Though the volume of water stored by this dam is quite small, and there is little chance that the sudden release of the water would damage persons and property downstream, it is recommended that conditions at the dam be called to the attention of the owner so that he may take corrective steps to prevent further deterioration of the dam and thus the possible loss of his investment. The dam does come under County jurisdiction because of its height. If it does continue to deteriorate, then a recommendation will eventually be made that the owner be directed to either repair or breach the dam.

D. Congamond Lakes South Dike

This dike was found to be in satisfactory condition. There is some weed growth on the side slopes but this growth is small and unimportant at present. There is also some small brush and very small tree growth on the pond side slope of the embankment. This growth is small and need not be cut as yet. The top of the dike embankment is in good condition.

In the opinion of the undersigned, conditions at this dike are satisfactory.

E. Congamond Lakes Outlet

The lake outlet itself was noted to be o.k. The concrete structure is in good condition and well maintained. One 8" x 12" stoplog is in each of the two bridge sections. The distance down to the top of the stoplogs in the slots on each side of the structure measures approximately 5 ft. 6 in. from the top of the masonry slots.



It was observed that water in the stream was being backed up by conditions downstream of the Congamond Lakes Outlet structure. An examination of the stream in the vicinity of the railroad bridge just below the outlet shows the presence of vegetation, debris and miscellaneous materials which hinder the flow of the water in the stream. The bed of the stream needs to be cleaned from a point 100 ft. more or less below the railroad bridge back to, thru and about one-half of the way upstream from the railroad bridge to the Lakes outlet structure. This condition does not endanger the outlet structure but prevents it from functioning as intended.

It might be advisable to notify the Selectmen of the Town of Southwick that the stream below the outlet is becoming plugged.

F. Congamond Lakes North Dike

This compacted earth embankment was found to be in satisfactory condition. It is fairly massive and has a relatively high freeboard above lake level. There is very little sod cover on the surface and most of the original riprap has become displaced.

A portion of the surface is being eroded by surface wash. This erosion, though fairly deep and extensive at lower elevations on the embankment, does not endanger the structure in any way.

Some of the surface wash doing the damage may be originating from higher ground along the dirt road that leads down onto the dike from each side hill. Proper drainage facilities would eliminate the erosion. However, since the erosion is more of a nuisance nature and only detracts from any aesthetic value, it is not necessary, in the opinion of the undersigned, that a directive be given requiring that proper drainage be constructed to prevent extension of the erosion.

In the opinion of the undersigned, this dike is safe.

G. Hathaway & Steane Co. Dam #1

The embankment forming this dam is in fair condition. Brush growth should be kept cut down and a good sod cover should be developed and maintained on both road shoulders and on slopes that are not rock paved.

The spillway inlet structure is o.k. Normal stoplogs were in place but the pond elevation was noted to be quite low as a result of low brook flow and leakage at stoplog joints. Any poor or failing stoplogs should be replaced with new stoplogs of good quality.

The spillway tube was noted to be o.k. as were the joints at the various concrete pipe sections. There was no debris in the spillway tube.

The toe area of the embankment was wet but this is a normal condition at this dam. The roadway extending across the top of the dam embankment was noted to be o.k.

In the opinion of the undersigned, the dam is safe but it should receive attention and maintenance as recommended hereinbefore.

H. Hathaway & Steane Co. Dam #2

A leak has developed at the headwall where the spillway tube thru the dam embankment joins the inlet structure. The leakage has resulted in partial failure of the embankment fill just at and beside the inlet masonry structure. This leak must be repaired to protect the dam embankment and to prevent it from possible failure.

Stoplogs were in place in the spillway inlet slots and water level in storage was at normal elevation.

The shape of the embankment was noted to be fair. Sod cover on the surface of the embankment was fair to good. The toe area was satisfactory.

The spillway tube was noted to be clear of any debris. The dry stone masonry wall at the downstream side of the dam just adjacent to the spillway tube was noted to be failing and it should be strengthened or re-aligned as needed.

In the opinion of the undersigned, this dam is not safe and repairs should be made as soon as possible. Stoplogs should be removed from the inlet structure and the pond lowered until the required repairs are made.

I. Hathaway & Steane Co. Dam #3

No changes were noted in conditions at this dam. The body of water formed is adjacent to the golf course property near the northerly boundary of Hathaway & Steane Co. land. The pond is almost entirely in excavation and the dam itself is simply a dike along the left side of the brook. It is doubtful that this structure comes under County jurisdiction. The outlet is nothing more than the natural brook bed as it discharges onto golf course property. The water level is not actually raised above the natural bed of the brook course.

This dam is examined when the other dams of Hathaway & Steane Co. are examined because of its proximity to Dam #1 and #2.

In the opinion of the undersigned, conditions at Dam #3 are satisfactory.

J. Hathaway & Steane Co. Farm Pond Dam

The dam embankment and the swale spillway are well shaped and covered with a good growth of turf. The turf should be cared for annually and developed as necessary. The gravel roadway extending across the top of the embankment and across the flood flow swale spillway was noted to be o.k.

The swale spillway was in good condition. Turf cover is growing very well. The left side of the swale was noted to be quite wet but this water is ground or surface water and probably comes from the high ground to the left of the swale.

The spillway tube and the stream bed at the discharge end of the tube were noted to be o.k. The weighted stone fill on the toe of the dam embankment near the spillway tube was in satisfactory condition.

The vertical shaft spillway had stoplogs in place to normal height and water in storage was at the elevation of the upper stoplog. The opening of the vertical spillway tube is partially plugged with floating debris. This opening should be kept clear of debris so that it will function to its capacity and thus minimize any discharge of trickle water thru the emergency swale spillway.

K. Basil Tysz Dam

The embankment of this dam was found to be in satisfactory condition. The toe area was in fair condition but the slope of the downstream face of the embankment in the vicinity of the spillway tube was quite steep and eroded. This area should be repaired.

There is some brush and weed growth occurring on the embankment but it is not too bad as yet. The top surface of the embankment is o.k.

Some of the stoplogs were out of the slots of the spillway inlet. Water level in storage was low.

The spillway tube and the inlet structure were o.k. Little debris of no consequence was noted in the inlet.

The shape of the embankment was observed to be generally good. The swale at the left of the embankment is satisfactory. This is in the area at the access road. Should storm flows cause the surface of ponded water to approach the elevation of the top of the embankment, these flows would be discharged around the dam, thru the swale to the left, in the vicinity of the access road.

In the opinion of the undersigned, the dam is safe but should receive maintenance and attention as pointed out.

L. General Cigar Corporation Lower Dam

The stoplogs are out of the slots of the vertical spillway shaft and water level in storage was low. Weed and brush growth should be kept under control on the embankment, particularly on the sloping faces of the embankment and at the swale spillway. A good turf cover should be developed over the entire dam embankment as well as on the surface of the swale spillway.

The toe area of the dam was satisfactory. The spillway conduit was o.k. and was clear of any debris.

The dam does need attention and better maintenance than in the past.

M. General Cigar Corporation Upper Dam

The stoplogs are out of the slots in the vertical spillway shaft and the pond has been drawn down. The shaft inlet is o.k. and the tube thru the embankment was functioning and is in satisfactory condition.

An examination of the downstream face of the embankment shows evidence that this embankment has been overtopped. In the inspection report of last year, the undersigned pointed out that on the day of inspection water level in storage was at the elevation of the top of the embankment and that the spillway tube was plugged. It was also pointed out that at the left end of the embankment stored water was seeping over the top of the dam. A recommendation was made that the condition be corrected and that a swale be built around the left end of the dam to act as an emergency spillway facility.

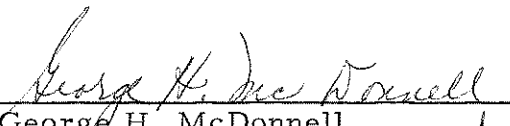
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These recommendations were passed on to the owner of the dam but he has not taken any steps to follow them.

In view of the fact that the dam has been overtopped, that a portion of the downstream face has been washed out, and since the owner has not, during the past year and a half taken any action to follow the previous recommendations, the undersigned recommends to your Honorable Board that the owner be advised to properly repair this dam and build a swale spillway on natural ground around the left of the dam. All work should be completed by May 1, 1970, or the dam should be breached and abandoned.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

Southwick - Congamond Lakes - repairs & spillway



1957 Reports

Massachusetts Comm Special Provisions #1659. Itemized Proposal with Special Provisions for Repair of Closure Dikes and Construction of New Spillway - Congamond Lakes, Southwick.

City/Town	Southwick
Name	Massachusetts Comm
Water	Congamond Lakes

830

The Commonwealth of Massachusetts  
Department of Public Works

NO. 1659

ITEMIZED PROPOSAL  
WITH  
SPECIAL PROVISIONS

FOR  
REPAIR OF CLOSURE DIKES AND  
CONSTRUCTION OF NEW SPILLWAY  
CONGAMOND LAKES, SOUTHWICK

-----  
In the TOWN OF SOUTHWICK

In accordance with the STANDARD SPECIFICATIONS  
FOR WATERWAYS WORK

1941 .

This Proposal to be opened and read. TUESDAY, MARCH 5, 1957

COMMONWEALTH OF MASSACHUSETTS, Department of Public Works, Notice to Contractors: Sealed proposals for Repairs to Closure Dikes and Construction of New Culvert and Spillway at Congamond Lakes, Southwick; will be received at Room 503, 100 Nashua Street, Boston, Mass. until 2 P. M. Tuesday, March 5, 1957 and at that time publicly opened and read at the Fourth Floor. Proposal guaranty \$1500.00. Charge for plans and proposal form: \$10.00, amount returnable only to bidders. Complete information at said office. Minimum wage and dump truck rates have been established. Right reserved to waive any informality in or to reject any or all proposals. Award will not be made to contractor not equipped to undertake and complete the work. By: Carl A. Sheridan, Commissioner of Public Works, February 19, 1957.



SPECIAL PROVISIONS FOR REPAIR OF CLOSURE DIKES AND CONSTRUCTION  
OF SPILLWAY, CONGAMOND LAKES, SOUTHWICK, MASSACHUSETTS

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Work To Be Done

The work to be done consists of restoring and improving earth dikes and constructing a spillway and culvert to replace an inadequate outlet culvert all on various parts of Congamond Lakes in the Town of Southwick. The work is shown in detail on the plans and is hereinafter described in these Special Provisions.

Plans

The location and details of the work to be done are shown on a set of three plans entitled "Proposed Repair of Closure Dikes and Construction of New Spillway, Congamond Lakes, Southwick", dated September 1956 and marked ACC 03584, A, B, & C, inclusive.

These plans are on file in the office of the Department of Public Works, Division of Waterways, 100 Nashua Street, Boston, Mass., and are hereby referred to and made a part of these Special Provisions.

General

The Contractor must satisfy himself, by his own investigation and research, regarding conditions affecting the work to be done and the labor and materials needed, and make his bid in sole reliance thereon.

The Contractor shall furnish all necessary materials, all labor, tools, plant and equipment, and do all the work necessary to furnish and install and complete the work in accordance with these Special Provisions and the Standard Specifications for Waterways Work.

During construction, the Contractor shall secure all necessary permits from owners to trespass their property in the transportation of material and equipment to the work, and the Contractor shall repair at his own expense any damage caused by him to lawns, driveways, roads, structures, etc. In all phases of the work, the Contractor will be required to conform to all local regulations as to blasting and to proper use of highways and bridges.

The Contractor shall so limit his operations and carry on his work in such manner and sequences as to insure the least possible interference with traffic and normal use of the adjacent areas.

The borings as indicated on the plans were taken for the purpose of design. They do not necessarily show the actual nature of the material that may be encountered in the excavation, and the Department does not guarantee or represent that the results are even approximately correct, and the Contractor shall satisfy himself by his own investigation regarding all conditions of the work and base his bid in sole reliance thereon.

On completion of the work, the Contractor shall remove from the site all debris, excess materials, tools and equipment and shall leave the premises in a neat and orderly condition, to the satisfaction of the Engineer.

An Inspector, appointed by the Engineer, will be present whenever materials are being placed, and if for any reason the placing of materials is not carried on continuously, the Contractor shall give the Engineer timely notice of the expected arrival of materials in order that the Inspector may be present when they arrive. No materials shall be used under this contract which have not been examined and passed by the Inspector.

All necessary lines and grades will be given to the Contractor, who shall provide, at his own expense, such materials and labor as may be required. If the Contractor, through wilfulness or carelessness, removes or permits to be removed such reference marks before the prosecution of the work requires it, they shall be replaced at his own expense. All work shall conform during its progress and on its completion truly to the lines and grades given by the Engineer, and shall be done in a thoroughly substantial and workmanlike manner in accordance with the plans and directions given from time to time by said Engineer, subject to such modifications and additions as shall be deemed necessary by him during its execution, and in no case shall any work in excess of the plan requirement and specifications be paid for unless ordered in writing by said Engineer.

It is estimated that the quantity of materials mentioned in the proposal will be required, but this amount shall not control the performance of this contract and the Contractor shall be bound hereunder whether or not such estimate is even approximately correct.

The Department reserves the right to limit the prosecution of the work to such points and in such order as the Engineer may direct.

The Department reserves the right to eliminate any portion of the work, so as to bring the total expenditure within the amount available for the project. Attention is called to the fact that Minimum Wage and Dump Truck Rates are established for the project and are set forth herein.

Particular attention of all bidders is called to Articles 67, 74, and 75 of the "Standard Specifications for Waterways Work", which refer to "Prosecution of Work", "Determination and Extension of Contract Time for Completion" and "Failure to Complete Work on Time."

Wherever the term "Standard Specifications" is used hereinafter in these Special Provisions, it shall mean Division II of the Standard Specifications for Highways and Bridges of the Department of Public Works of Massachusetts, 1953 Edition, and any and all Addenda thereto.

Additional Insurance Requirements

Supplementing Article 46 of the "Standard Specifications for Waterways Work" dated May 1941, the provisions of Article 46, as amended, of the Standard Specifications for Highways and Bridges of the Department of Public Works, Edition of 1953, shall apply to this contract.

The minimum limits of the several kinds of liability insurance required for this contract are as follows:

Public Liability	\$ 50,000/\$100,000
Property Damage Liability	\$ 50,000/\$100,000
Protective Public Liability	\$ 50,000/\$100,000
Protective Property Damage Liability	\$ 50,000/\$100,000

Payment to Subcontractors (G.L. Chap. 30 Sec. 39F, inserted  
by Chap. 701 Acts of 1955)

Within ten days after the general contractor receives payment on account of a periodic estimate of the value of the work done, he shall pay to each subcontractor the sum contained therein for the value of said subcontractor's work, less any amount retained therefrom by the awarding authority under the terms of the contract or in consequence of any legal proceedings or statutory liens, and less any amounts due the general contractor under said subcontracts; not less than sixty-five nor more than seventy-five calendar days after a subcontractor fully completes his portion of the work, and payment therefor has been made to the general contractor, payment shall be due the subcontractor and the general contractor shall pay to the subcontractor the entire balance due said subcontractor less the amount which the awarding authority determines shall be retained pending its determination that said portion of the work is satisfactory, or in consequence of any legal proceedings or statutory liens and less any amounts due the general contractor under said subcontracts; and, in the event the general contractor does not pay the subcontractor within seventy-five calendar days the entire balance due the subcontractor on the completed work, less the aforesaid amounts, the subcontractor shall give the awarding authority written notice of such event and of the amount so payable, but not paid, by the general contractor and thereupon the awarding authority shall make out of sums payable to the general contractor on the contract direct payment of the entire balance due the subcontractor for the work, less the aforesaid amounts.

ITEM 1

DIVERSION AND CARE OF WATER

LUMP SUM

Description

(a) North Pond Dike

The present outflow from North Pond consists of a small brook which follows the path of the washout in a northerly direction to Great Brook proper. The brook is fed chiefly by underground springs which discharge into North Pond. A small stream coming through the Point Grove culvert from Middle Pond adds slightly to the total volume which normally is less than 3 cubic ft. per second.

At the culvert at Point Grove Road between Middle Pond and North Pond, sand-bags and stop planks have been placed to control the flow of water into North Pond. During construction the Contractor shall maintain this structure. Upon completion of the North Pond Dike the Contractor shall regulate the flow of water into North Pond, to the satisfaction of the Engineer. The flow shall be controlled by the removal of the stop planks so as to cause no damage to the structures.

The Contractor shall remove and dispose of sand bags and fill and perform all necessary excavation at the culvert in order to provide for the free unobstructed flow of water between the two ponds.

The Contractor shall build such dikes or cofferdams as he may deem necessary for the proper and safe unwatering of the construction area. Pumping equipment shall be provided and maintained as required to insure suitably dry working conditions. Temporary dikes, cofferdams or other obstructions shall be removed from the pond area or so relocated as to assist in the proper grading of other nearby shore areas.

The Contractor shall assume entire responsibility for the safety of the dikes or cofferdams and for any damages resulting from any failure thereof. These structures shall be maintained by the Contractor at his own expense in such a manner as to completely unwater the areas in which work is being done.

(b) Berkshire Ave. Spillway

The present outflow from the south end of Middle Pond is taken by a 54" x 36" corrugated iron culvert. This culvert shall be utilized for diversion purposes during construction of the new spillway and culvert. Dikes, cofferdams, sheeting and pumping shall be provided as specified under (a) above. Similar care shall be taken to properly divert water through the new spillway during removal of the old culvert and backfilling operations.

(c) South Pond Dike

There is no flow of water at this end of the lakes and it is not proposed to

unwater the construction area. Consequently, there is no diversion or pumping to be considered.

Basis of Payment

Under Item 1 of the contract, the Contractor will be paid the contract lump sum for the diversion and care of water at the North Pond dike area and the Berkshire Ave. spillway on Congamond Lakes, Southwick, as specified herein and as directed. This lump sum price shall include all tools, labor, equipment materials, pumping, dikes, cofferdams and sheeting and their removal and disposal and all incidental work.

ITEM 2

SITE CLEARANCE

LUMP SUM

Description

The Contractor shall cut down and remove from the pond area one 16" oak tree on the west bank of the North Pond washout and one 12" oak and light brush on the east bank of the washout gully. Stumps and roots shall be included in the removal. After the new Berkshire Ave. spillway and culvert is complete the Contractor shall remove the existing corrugated iron culvert together with any other related obstructions.

The corrugated iron culvert shall be carefully removed and shall become the property of the Town of Southwick and shall be disposed of where designated by the Engineer.

Before removal of corrugated iron culvert and related obstructions, the Contractor under Item 3C, shall provide a channel so dredged as to take the flow from the new culvert and direct it into the present brook channel.

The proposed South Pond dike area contains small trees and brush which shall be uprooted and removed. All trees, stumps, roots and brush removed shall be disposed of by the Contractor at his own responsibility away from the site of work and where the material will cause no obstruction to streams and will not detract from the appearance of the project.

Basis of Payment

Under Item 2 of the contract, the Contractor will be paid the contract lump sum price for site clearance as shown on the plans, specified herein, and as directed, which price shall include the cost of all tools, labor, equipment and all incidental work.

<u>ITEM 3A</u>	<u>UNCLASSIFIED EXCAVATION-NORTH POND DIKE AREA</u>	<u>LUMP SUM</u>
<u>ITEM 3B</u>	<u>UNCLASSIFIED EXCAVATION-SOUTH POND DIKE AREA</u>	<u>LUMP SUM</u>
<u>ITEM 3C</u>	<u>UNCLASSIFIED EXCAVATION-BERKSHIRE AVENUE</u>	<u>LUMP SUM</u>

Description

Under these items the Contractor shall perform all necessary excavation, backfill and disposal required to complete the project as shown on the plans, specified herein and as directed.

Construction Method

Item 3A - North Pond Dike Area

The Contractor shall remove loose, unstable material on the washout gully bottom and side slopes in preparation for the deposit of permanent dike material. Such removed material may be placed at the southerly end of the dike as part of the temporary cofferdam or toe of the permanent dike.

Item 3B - South Pond Dike Area

Loose material on top of the present dike at South Pond shall be removed and may be dumped below water in the old canal on the south side of the dike. The bottom of the existing canal on the north side of the present dike and within the limits of the proposed new dike shall be dredged to sound bottom. Material so removed may be deposited below water in the old canal on the north side of the present dike. Approximate elevations to top of silt and top of sound bottom are noted on the drawings.

Item 3C - Berkshire Ave. Spillway, Culvert and Roadway

The Contractor shall excavate to depths indicated on the drawings and to widths as may be required for the construction of the new spillway and culvert and excavate for removal of the existing corrugated iron culvert and for the reconstruction of a section of the roadway. The channel excavation required to direct the flow of water from the new culvert into the present brook channel is also included in this item. The excavated material may be deposited below the water line on the adjacent south shore of Great Brook. All suitable materials obtained from the excavation shall be used as backfill around the new culvert and in the void caused by removal of the existing culvert and in the reconstruction of the roadway. Backfill shall be thoroughly compacted to conform with the applicable portions of Sections A3.30-C, A8.30 and A9.30 of the "Standard Specifications". Unsatisfactory excavated material shall be disposed of outside the location of the work in such a manner as not to obstruct streams or the appearance of the project. When excavating for the spillway and the removal of the existing culvert in Berkshire Avenue, particular care shall be exercised in the vicinity of the six (6) inch water main. The Contractor shall be responsible for, and repair at his own expense, any damage caused the water main, to the satisfaction of the Southwick Water Department.

Basis of Payment

Under Item 3A of the contract, the Contractor will be paid the contract lump sum price for unclassified excavation at North Pond Dike Area as herein specified, as shown on the plans and as directed.

Under Item 3B of the contract, the Contractor will be paid the contract lump sum price for unclassified excavation at South Pond Dike Area as herein specified, as shown on the plans and as directed.

Under Item 3C of the contract, the Contractor will be paid the contract lump sum price for unclassified excavation at Berkshire Avenue as herein specified, as shown on the plans and as directed.

The above lump sum prices shall include all backfilling when materials are obtained from excavation, disposal of surplus and unsatisfactory materials, and the furnishing of all tools, equipment, labor and work incidental thereto.

<u>ITEM 4A</u>	<u>BORROW FILL - NORTH POND DIKE</u>	<u>CUBIC YARD</u>
<u>ITEM 4B</u>	<u>BORROW FILL - SOUTH POND DIKE</u>	<u>CUBIC YARD</u>
<u>ITEM 4C</u>	<u>BORROW FILL - NORTHWEST SHORELINE NORTH POND</u>	<u>CUBIC YARD</u>

Item 4A - North Pond Dike

Description

The Contractor shall excavate, haul, place and compact borrow fill for the construction of the North Pond Dike as shown on the plans as specified herein, and as directed. Fill for this part of the project will be made available at no charge to the Contractor and shall be obtained from the side slopes of the existing washout gully to the North of the proposed dike location. Present side slopes are in general steeper than 1 on 1-1/2. Material above this gradient may be removed and utilized as borrow fill. Included under this item shall be the clearance of trees and brush at the upper limits of the side slopes as required to obtain material above the specified slope and to leave the banks in safe and satisfactory condition.

Construction Methods

Fill shall contain no refuse, debris, organic matter or other foreign matter. In preparation for the construction of the dike all vegetation, roots, sod and foreign matter shall be removed from the areas to be covered. The soil foundation upon which the dike is to be placed shall be in a suitable condition, as determined by the Engineer, before any material is placed thereon.

The materials shall be spread in approximately horizontal layers over the prepared foundation. The layers shall extend at an approximately uniform elevation over the entire width of the cross section and for the entire length of the section under construction. The thickness of each layer after compaction shall be not more than 8 inches. Side slopes shall be trimmed neatly to the finished slope lines or brought to the dimensions required for the placing of top soil, as shown on the plans or as directed.

Each layer of fill in the dike shall be thoroughly compacted by a tractor or power roller weighing not less than 10 tons. The outer edges of the fill shall receive the same compaction as the center portion and any section not accessible to the compaction equipment shall be hand-tamped in 4 inch layers. Water shall be used if necessary to obtain proper compaction if and as directed by the Engineer. At least 95 per cent of the optimum consolidation of the materials shall be obtained by the compaction.

#### Measurement and Basis of Payment

Under Item 4A of the contract, the Contractor will be paid the contract unit price per cubic yard of fill excavated, hauled, placed and compacted, as herein specified, which unit price shall include all tools, labor, equipment and all incidental work. The quantity to be so paid for shall be the actual volume of material as measured in place as the volume between the foundation lines as determined on the basis of a survey before filling is placed and the slope lines and grades shown on the plans or as laid out in the field, or by such other method of measurement as may be determined by the Engineer.

#### Item 4B - South Pond Dike

##### Description

The contractor shall furnish, place and compact borrow fill for the construction of the South Pond dike as shown on the plans as specified herein and as directed.

##### Construction Methods

Fill shall be an earth mixture composed chiefly of granular materials, with small amounts of clay and/or silt permissible. Fill shall contain no refuse, debris, organic matter or other foreign matter. In preparation for the construction of the dike that area which lies above the pond level shall be cleared of all vegetation, roots, sod and soft materials down to firm ground. This soil foundation upon which the dike is to be placed shall be in a suitable condition, as determined by the Engineer, before any dike material is placed thereon. Material shall be deposited into the canal along the northerly side of the present dike to an elevation such as to be above pond level approximately a foot and then progressively deposited along this newly formed bank out to the northern limits of the dike. The remaining part of



the dike above this initial level shall be spread in approximately horizontal layers over the entire area. The thickness of each layer after compaction shall be not more than 8 inches. Side slopes shall be brought to the dimensions required for the placing of top soil, as shown on the plans or as directed. Each layer of fill in this portion of the dike shall be thoroughly compacted by a tractor or power roller weighing not less than 10 tons. The outer edges of the dike shall receive the same compaction as the middle of the dike. Any section of the dike not accessible to the compaction equipment shall be hand-tamped in 4" layers. Water shall be used if necessary to obtain proper compaction if and as directed by the Engineer. At least 95% of the optimum consolidation of the materials shall be obtained by the compaction.

#### Measurement and Payment

Under Item 4B of the contract, the Contractor will be paid the contract unit price per cubic yard of fill borrow furnished, placed and compacted as herein specified, which unit price shall include all tools, labor, equipment and all incidental work. The quantity to be so paid for shall be the actual volume of material as measured on the site of the work by the Engineer, in the vehicles in which the material is delivered with no additions or deductions for compaction or swelling, or by such other method of measurement as may be determined by the Engineer.

#### Item 4C - Northwest Shore Line - North Pond

##### Description

The Contractor shall excavate, haul, place and compact borrow fill along a section of the northwest shore line of North Pond as shown and designated as "Plan X" on the plans, herein specified and as directed.

##### Materials

Fill shall be obtained from the washout slopes as specified under Item 4A.

##### Construction Methods

This fill is intended to alleviate the hazards (caused by the washout) of having sudden sharp drops in the underwater ground lines. Fill shall be dumped and spread to a reasonably even slope to elevations indicated on the plans and compacted sufficiently to obtain a firm walking surface.

##### Measurement and Basis of Payment

Under Item 4C of the contract, the Contractor will be paid the contract unit price per cubic yard of fill excavated, hauled, placed and compacted, as herein specified, which unit price shall include all tools, labor, equipment and all incidental work. The quantity to be so paid for shall be the actual

volume of material as measured in place as the volume between the foundation lines as determined on the basis of a survey before filling is placed and the slope lines and grades shown on the plans or as laid out in the field, or by such other method of measurement as may be determined by the Engineer.

ITEM 5

FILL AND GRAVEL FOR ROADWAY

CUBIC YARD

Description

The Contractor shall furnish, place and compact gravel for roadway base course and shoulders and any additional borrow fill that may be required for the proper construction of the roadway.

Materials and Construction Methods

Borrow fill shall conform to the specifications for Ordinary Borrow under Section A6.20 of the "Standard Specifications".

Gravel shall conform to Section A6.21 of the "Standard Specifications".

The subgrade; shoulders; scarifying and reshaping; grading, rolling and finishing; and gravel base course shall conform to the applicable requirements of Sections A-8, A-9, A-10, A-12 and B-1 respectively of the "Standard Specifications".

Method of Measurement and Basis of Payment

Under Item 5 of the contract, the Contractor will be paid the contract unit price per cubic yard for fill and gravel for roadway, complete in place, which price shall include full compensation for furnishing, placing, rolling of material, scarifying and reshaping and all equipment, tools, labor and all items incidental thereto.

The quantity to be paid for shall be the actual volume of material as measured on the site of the work by the Engineer, in the vehicles in which the material is delivered with no additions or deductions for compaction or swelling, or by such other method of measurement as may be determined by the Engineer.

ITEM 6

RIPRAP AND ROCK FILL

TON

Description

The Contractor shall furnish and place riprap and rock fill in the areas as shown on the plans, specified herein, and as directed.

Materials

Riprap stone and Rock Fill shall be dense, sound and hard, resistant to action of air and water, suitable for the purpose intended and obtained from an

approved source; shall be reasonably clean, angular in shape, with one surface reasonably flat. Approximately 60 per cent of the stones shall be from 2 to 3 cubic feet in volume and the remainder of the stone, except for spalls and filler, shall be from 1 to 2 cubic feet in volume. Stones for riprap shall vary in size to form a compact mass with a minimum of voids in place and except for the smaller stone used to fill the voids between the large stones, all stones shall extend the full depth of the riprap.

#### Construction Methods

Stone for riprap shall be placed to obtain the slope shown on the plans, to the thickness indicated, with adjoining stones in close contact, and irregular spaces between the larger stones filled with smaller stones and spalls of the largest feasible area. Stone shall be selected for size and shape to secure a neat, compact layer of the thickness noted. The required distribution of the various stones shall be obtained in the complete mass, and the exposed surface shall form a reasonably even surface. The stones shall be placed with largest stones near the base. Any excavation required for the placing of the riprap will be considered as incidental work under this item.

Stone for rock fill shall be dumped in place with care being taken not to disturb the concrete structures. Finish surface of rock fill areas shall have a reasonably neat and even appearance.

#### Measurement and Basis of Payment

Under Item 6 of the contract, the Contractor will be paid the contract unit price per ton for riprap and rock fill furnished and placed, as herein specified, as shown on the plans and as directed. No compensation will be made under this item for placing riprap or rock fill salvaged from excavation. This unit price shall include all materials, tools, labor and equipment and all incidental work. The quantity to be so paid for shall be based upon certified weight slips, furnished the Engineer, of all stone delivered and placed as specified and directed.

<u>ITEM 7</u>	<u>CLASS "A" CEMENT CONCRETE</u>	<u>CUBIC YARD</u>
<u>ITEM 8</u>	<u>REINFORCING STEEL</u>	<u>POUND</u>

#### Description

The Contractor shall furnish and place all Class "A" air entrained cement concrete, all steel reinforcement, bituminous damp-proofing, copper water stop, wood spillway plates and preformed joint filler for expansion joint as shown on the plans, specified herein, and as directed.

Materials and Construction Methods

Cement concrete shall be Class "A" air-entrained cement concrete conforming to the applicable parts of Section C-1 of the "Standard Specifications". Steel reinforcement, including dowels, shall conform to Section C5-21 of the "Standard Specifications".

Copper water stop and preformed joint filler material for expansion joints shall conform to the applicable parts of Section C-8 of the "Standard Specifications".

Construction methods for cement concrete masonry shall conform to the applicable parts of Section C-5 of the "Standard Specifications". The finished surfaces of all concrete work shall have a smooth even surface free from fins, ridges and depressions.

Construction methods for expansion joints shall conform to the applicable parts of Section C-8 of the "Standard Specifications".

Bituminous damp-proofing materials and construction methods shall conform to the applicable portions of Section C-10 of the "Standard Specifications".

Wood for spillway plates shall be Southern Yellow pine or structural grade Douglas Fir, straight grained, planed on all sides and free from loose and unsound knots, and shall be fastened as shown on the plans.

Measurement and Basis of Payment

Under Item 7 of the contract, the Contractor will be paid the contract unit price per cubic yard for Class "A" air entrained Cement Concrete, furnished and placed, as herein specified, which unit price shall include all materials, copper water stops, weep holes, bituminous damp-proofing, spillway plates, preformed joint filler, forms, finishing, tools, labor, equipment and incidental work.

The quantity to be paid for shall be determined in accordance with the dimensions shown on the plans and such alterations of the plans as are specifically ordered by the Engineer.

Under Item 8 of the contract, the Contractor will be paid the contract unit price per pound for Steel Reinforcement, furnished and placed, as herein specified, which unit price shall include all materials, tools, labor, equipment and all incidental work. Steel reinforcement will be measured by the pound; the weight to be paid for shall be the product of the length as shown on the plans, or as otherwise directed, and the accepted nominal weights per foot for the sizes shown.

ITEM 9

BRIDGE RAILING

LINEAL FOOT

Description

The Contractor shall furnish, fabricate, install and paint the bridge railing consisting of 6 WF 20 steel posts, 4" x 6" wood railings, anchor bolts and cast iron inserts, as shown on the plans, specified herein, and as directed.

Material and Construction Methods

Miscellaneous steel and iron shall conform to the Standard Specifications for Structural "Steel for Bridges and Buildings", Serial Designation A7 of ASTM, as amended to date. Paint materials and painting of posts shall conform to the applicable requirements of Section C-7 of the "Standard Specifications". Anchor bolts and inserts will not require painting.

Material for wood railings shall be as specified under Section E 1.21 of the "Standard Specifications", except size of railings and plates shall be as shown on the plans.

Painting of railing shall be two coats of white paint conforming to Section E 1.24 of the "Standard Specifications".

Measurement and Basis of Payment

Under Item 9 of the contract, the Contractor will be paid the contract unit price per lineal foot for bridge railing furnished and installed complete in place, which unit price shall include bolts, cast iron inserts and all materials, painting, tools, labor, equipment and all incidental work.

Bridge railing will be measured by the lineal foot and the quantity to be paid for will be the number of lineal feet of bridge railing complete in place and accepted, measured from outside to outside of end posts.

ITEM 10

BITUMINOUS CONCRETE PAVEMENT

TON

Description

The Contractor shall furnish and place a two-course Bituminous Concrete pavement as shown on the plans, as herein specified and as directed.

Materials

All bituminous concrete pavement shall conform to all applicable provisions of Section B-18 of the "Standard Specifications".

Method of Construction

Gravel base course shall be shaped to grades shown on plans and thoroughly compacted. Bituminous concrete pavement shall be placed in two courses and each course rolled to a final thickness of one inch. Method of construction shall conform to all applicable provisions of Section B-18 of the "Standard Specifications".

Method of Measurement

Bituminous Concrete pavement will be measured in tons as delivered to the job site in accordance with the provisions of Section B-18 of the Standard Specifications.

Basis of Payment

Under Item 10 of the contract, the Contractor will be paid the contract unit price per ton for bituminous concrete pavement complete in place, which price shall be full compensation for furnishing, hauling, placing and compacting all materials, the preparation of all materials, supplying of equipment and tools, cleaning the surface of the existing roadway where required and all other incidental work necessary for final completion of the item as specified, including bitumen used for tack coat.

<u>ITEM 11</u>	<u>LOAM BORROW</u>	<u>CUBIC YARD</u>
<u>ITEM 12</u>	<u>SEEDING</u>	<u>SQUARE YARD</u>

Description

Under Item 11 the Contractor shall furnish and place loam in all new embankment areas, not otherwise covered with riprap, below normal water surface, or otherwise noted, as shown on the plans and as directed by the Engineer. Seeding and fine grading shall be done under Item 12.

Materials and Construction Methods

Loam borrow shall be a fertile, friable mixture of topsoil, typical of the locality, without admixture of subsoil, refuse or other foreign matter. It shall contain a reasonable amount of organic matter. Loam shall, prior to stripping, have demonstrated by the occurrence upon it of healthy crops, grass or other vegetative growth, that it is reasonably well-drained and that it does not contain toxic amounts of either acid or alkaline elements.

Construction methods shall comply with Section H1.30 of the "Standard Specifications". The loamed areas shall be fine-graded; they shall be carefully raked to remove all stone and other unsatisfactory material and then rolled as directed. Any depressions which may occur during the rolling shall then be filled with additional suitable material and the surface regraded and rolled until true to the desired lines and grades.

The loamed areas shall be seeded. Seed shall conform to Section H3.23 of the "Standard Specifications" for seed for Grass Flots. Construction methods shall conform to the applicable parts of Sections H3.30 to H3.35 inclusive of the "Standard Specifications".

Measurement and Basis of Payment

Under Item 11 of the contract, the Contractor will be paid the contract unit price per cubic yard for loam borrow, furnished and placed, as herein specified, which unit price shall include all materials, tools, rolling, grading, labor, equipment and all incidental work.

The quantity to be so paid for shall be measured at the job site by the Engineer in the vehicles in which it is delivered, with no additions or deduct for compaction or swelling, or by such other method as the Engineer may determine.

Under Item 12 of the contract, the Contractor will be paid the contract unit price per square yard for seeding complete in place as herein specified, which unit price shall include all materials, tools, labor, equipment and all incidental work.

The quantity to be paid for shall be the actual areas seeded, as measured by the Engineer.

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Supplementing the Standard Specifications for Waterways Work dated May 1941, the above Special Provisions shall apply.

Repair of Closure Dikes and Construction of  
New Spillway; Congamond Lakes, Southwick

MINIMUM WAGE AND HEALTH AND WELFARE FUND CONTRIBUTIONS as determined  
by the Commissioner under the provisions of the Massachusetts General  
Laws, Chapter 149, Sections 26 to 27D, inclusive.

PROJECT MASS.-PUBLIC WORKS

TOWN-SOUTHWICK

Congamond Lakes

Classifications	Current Hourly Rate	Contrib. H & W Fund	Total Hourly Rate	Hourly Rate	Changes H & W Fund	Total Rate
Power Shovel Operator	\$3.10	3%	3.19	AFTER: 4/1/57 3.25	3%	\$3.35
Crane Operator	3.10	3%	3.19	4/1/57 3.25	3%	3.35
Trenching Mach, Operator	3.10	3%	3.19	4/1/57 3.25	3%	3.35
Pumpman	2.55	3%	2.63	4/1/57 2.70	3%	2.78
Compressor Oper- ator				4/1/57		
220 c.f. or Less	2.10	3%	2.16	2.25	3%	2.32
Over 220 c.f.	2.55	3%	2.63	2.70	3%	2.78
Bulldozer Operator	2.65	3%	2.73	4/1/57 2.80	3%	2.88
Roller Operator	2.57 $\frac{1}{2}$	3%	2.65	4/1/57 2.72 $\frac{1}{2}$	3%	2.81
Mason	3.37 $\frac{1}{2}$	3%	3.48	4/1/57 3.52 $\frac{1}{2}$	3%	3.63
Mason Tender	2.15	0.07	2.22	4/1/57 2.30	0.07	2.37
Cement Finisher	3.37 $\frac{1}{2}$	3%	3.48	4/1/57 3.52 $\frac{1}{2}$	3%	3.63
Carpenter	2.82 $\frac{1}{2}$	0.075	2.90			
Iron Worker	3.53					
Asphalt Raker	1.90	0.07	1.97	4/1/57 2.05	0.07	2.12
Common Laborer	1.90	0.07	1.97	4/1/57 2.05	0.07	2.12
Truck Driver	2.19 $\frac{1}{2}$					
Operator of 3 Axle Equipment	2.25					



Repair of Closure Dikes & Construction of  
New Spillway, Congamond Lakes, -Southwick (Special Provisions)  
No. 1659

MINIMUM WAGE RATES

Sec. 26. Payments by employers to health and welfare plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.

Sec. 27. The aforesaid rates of wages in the schedule of wage rates shall include payments by employers to health and welfare plans as provided in the previous section, and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in the construction of such works who does not make payments to a health and welfare plan, where such payments are included in said rates of wages; shall pay the amount of said payments directly to each employee engaged in said construction.

Chapter 149, G. L.

(Special Provisions)

ADDITIONAL MINIMUM WAGES

If the Contractor finds it necessary during the progress of the work to secure a minimum wage rate for some additional classification, he shall make a request for such additional classification to the Department of Public Works, who in turn will obtain the additional classification and corresponding minimum wage rate from the State Department of Labor and Industries, and advise the Contractor of the same. These additional classifications and minimum wage rates are then to be considered a part of the contract, and the Contractor shall have no claim for additional compensation because of the additional classification and minimum wage rates.

Where a question arises as to the classification in the schedule of the Department of Labor and Industries in which any employee is to be included, the decision is to be made by the State Department of Labor and Industries, through their duly authorized representative.

# MINIMUM DUMP TRUCK RATES

As Revised September 1, 1955

In accordance with the provisions of Chapter 694 of the Acts of 1951, the following are the applicable rates and transportation charges prescribed by the Department of Public Utilities with respect to common and contract carriers who engage in dump-truck operations.

Item 1. Minimum Hourly Rates (for vehicle and driver)		(See Note 1)
<u>Registered carrying capacity of vehicle</u>		<u>Rate Per Hour</u>
1,001 Lbs. to	6,000 Lbs.	\$ 3.50
6,001 "	12,000 "	4.00
12,001 "	16,000 "	4.75
16,001 "	22,000 "	6.00
22,001 "	28,000 "	6.50
Over 28,000	(2-Axle Vehicles)	7.50
" "	(3-Axle Vehicles)	8.50

Note: 1. The hourly rate set forth above shall apply only when transportation charges are being paid for directly by the Commonwealth or any political sub-division thereof; or when the origin and destination points are both within the same city or town; or within 10 miles of each other, (air-miles).

## Item 2. Minimum Tonnage Rate (except bituminous concrete)

<u>Per Mile of Haul</u>	<u>First Mile</u>	<u>Each Succeeding Mile</u>
Rate Per Ton(2000 lbs.)	\$ .25 Plus	\$ .05
Minimum Yardage Rate		
<u>Per Mile of Haul</u>	<u>First Mile</u>	<u>Each Succeeding Mile</u>
Rate per cubic yard	\$ .35 Plus	\$ .08
(Irrespective of Commodity Density)		

## Item 3. Bituminous Concrete

<u>Per Mile of Haul</u>	<u>First Mile</u>	<u>Each Succeeding Mile</u>
Rate Per ton(2000 lbs.)	\$ .30 Plus	\$ .05

## Item 4. Computation of Mileage Charges

In the event of disagreement as to mileage on work being performed, said mileage on which the transportation charges are based shall be computed and determined by the contracting authority or agency as provided by Section 39B of Chapter 30 of General Laws.

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FOR Repair of Closure Dikes and Construction of New Spillway and Culvert at  
Congamond Lakes, Southwick  
COMMONWEALTH OF MASSACHUSETTS.

The work referred to herein is in the Town of Southwick  
County of Hampden ..... Commonwealth of Massachusetts  
and is shown by a set of plans, on file in the office of the Department of public Works, entitled : .....

**To the Party of the First Part:**

The undersigned, as bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, the proposed form of contract, the standard specifications and plans therein referred to and the Special Provisions hereto annexed; and he proposes and agrees, if this proposal is accepted, that he will contract with the Party of the First Part, in the form of the contract referred to herein and to be annexed hereto, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract, in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in payment therefor the following unit prices, to wit:

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
1.	1	Lump Sum for Diversion and Care of Water as herein specified, including all incidental work, the sum of  Lump Sum				
2.	1	Lump Sum for Site Clearance, as herein specified, including all incidental work, the sum of  Lump Sum				
3A.	1	Lump Sum for Unclassified Excavation, - North Pond Dike Area - as herein specified, including all incidental work, the sum of  Lump Sum				

CARRIED FORWARD

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
-2-						
BROUGHT FORWARD						
3B.	1	Lump Sum for Unclassified Excavation, - South Pond Dike Area - as herein specified, including all incidental work; the sum of				
		Lump Sum				
3C	1	Lump Sum for Unclassified Excavation - Berkshire Avenue - as herein specified, including all incidental work, the sum of				
		Lump Sum				
4A.	6,000	Cubic Yards of Borrow Fill - North Pond Dike - as herein specified, including all incidental work, the unit price of				
		Per Cubic Yard				
4B.	1,200	Cubic Yards of Borrow Fill - South Pond Dike - as herein specified, including all incidental work, the unit price of				
		Per Cubic Yard				
4C.	500	Cubic Yards of Borrow Fill - Northwest Shoreline North Pond - as herein specified, including all incidental work, the unit price of				
		Per Cubic Yard				
5.	1,000	Cubic Yards of Fill and Gravel for Roadway, as herein specified, including all incidental work, the unit price of				
		Per Cubic Yard				
CARRIED FORWARD						

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
		-3- BROUGHT FORWARD				
6.	350	Tons of Riprap and Rock Fill, Furnished and Placed, as herein specified, including all incidental work, the unit price of				
		Per Ton				
7.	115	Cubic Yards of Class "A" Cement Concrete, as herein specified, including all incidental work, the unit price of				
		Per Cubic Yard				
8.	17,000	Pounds of Reinforcing Steel, as herein specified, including all incidental work, the unit price of				
		Per Pound				
9.	40	Lineal Feet of Bridge Railing, as herein specified, including all incidental work, the unit price of				
		Per Lineal Foot				
10.	160	Tons of Bituminous Concrete Pavement, as herein specified, including all incidental work, the unit price of				
		Per Ton				
11.	325	Cubic Yards of Loam Borrow, as herein specified, including all incidental work, the unit price of				
		Per Cubic Yard				
CARRIED FORWARD						

ITEM NO.	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
		<del>4</del> BROUGHT FORWARD				
12.	2,000	Square Yards of Seeding, as herein specified, including all incidental work, the unit price of				
		Per Square Yard				
TOTAL BID						

The above prices are to include and cover the furnishing of all materials (except as herein otherwise specified) the performing of all the labor requisite or proper, and the providing of all necessary machinery, tools; apparatus and other means of construction; and the doing of all the above mentioned work in the manner set forth, described and shown in the specifications and on the drawings for the work, and in the form of contract, and the completion thereof ~~on or before~~ within 130 calendar days. (The said number of days to extend from the day when Contractor's copy of the contract will have been delivered.)

.....19

Accompanying this proposal is a certified check payable to the order of the Department of Public Works for \$1500.00

.....

If this proposal shall be accepted and the undersigned shall fail to contract as aforesaid and to give a bond in the sum to be determined as aforesaid with surety satisfactory to the Department; within six days (not including Sunday) from the date of the mailing of a notice from the Department to him; according to the address herewith given; that the contract is ready for signature; the Department may, at its option, determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void, and the proposal guaranty submitted, covering this proposal shall become the property of the Commonwealth of Massachusetts; otherwise the said proposal guaranty shall be returned to the undersigned.

SIGNATURE OF BIDDER.....

PLACE OF RESIDENCE.....

BUSINESS ADDRESS.....

DATE.....

The full names and residences of all persons and parties interested in the foregoing proposals are as follows:

(NOTICE--Give first and last names in full; in case of corporations give names of President, Treasurer and Manager, and in case of firms give the names of the individual members.)

.....

.....

.....

.....

.....

The proposed surety company on the bond to be given as follows:

NAME.....

ADDRESS OF HOME OFFICE.....

MASSACHUSETTS ADDRESS.....



Springfield - Forest Park Cascades - 1956.



o Reports

Specifications filed September 11, 1956 by the Board of Park Commissioners of the City of Springfield, Joseph A. Nowak, Jr., Engineer. Repair and Reconstruction of the "Cascades" Forest Park.

Abutters	Forest Park
City/Town	Springfield
Dam	Cascades Dam

d25 098

SPECIFICATIONS  
REPAIR AND RECONSTRUCTION  
OF THE "CASCADES"  
FOREST PARK  
SPRINGFIELD, MASSACHUSETTS

Sept 10, 1956

## ADVERTISEMENT FOR BIDS

Department of Public Parks  
City of Springfield, Mass.

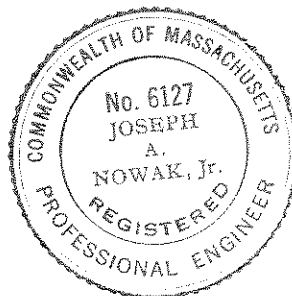
Sealed proposals will be received by the Board of Park Commissioners of the City of Springfield, Mass. at the Forest Park Office, until twelve o'clock noon, daylight saving time, on September 19, 1956, for the repair and reconstruction of the dam and waterways known as the "Cascades", in accordance with the plans and specifications which may be obtained at the Forest Park Office in Forest Park, upon the deposit of ten dollars (\$10.00). Said deposit will be refunded when plans and specifications are returned.

Bids are to be addressed to the Board of Park Commissioners and accompanied by a certified check for an amount not less than ten percent (10%) of the bid, made payable to the City Treasurer of Springfield, Massachusetts. All bids must be endorsed "Proposal for Repair and Reconstruction of the Cascades". A satisfactory surety performance bond for the full amount of the contract price will be required of the successful bidder.

Attention is called to the requirements as to conditions of employment and minimum wage rates to be paid under the Contract.

The right is reserved to reject any or all bids, or to waive any defects in same.

BOARD OF PARK COMMISSIONERS



## INFORMATION FOR BIDDERS

RECEIPT AND OPENING OF BIDS: The City of Springfield, Massachusetts, acting through its Board of Park Commissioners (hereinafter called the "Owner"), invites bids on the form attached hereto, all blanks in which must be appropriately filled in. Bids will be received by the Owner at the Office of the Superintendent of the Department of Public Parks, Forest Park, Springfield, Massachusetts, until 12 o'clock noon....September 19, 1956....and immediately following that time will be publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to the Board of Park Commissioners, Department of Public Parks of the City of Springfield, Massachusetts, and designated as "Proposal for the Reconstruction and Alteration of the "Cascades" Dam.

CONDITIONS OF WORK: Each bidder must inform himself fully of the conditions relating to the construction and labor under which the work is now being or will be performed. Failure so to do will not relieve a successful bidder of his obligations to furnish all material and labor necessary to carry out the provisions of the contract documents and to complete the contemplated work for the consideration set forth in his bid. In so far as possible, the Contractor, in the carrying out of his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

The Contractor shall keep himself fully informed and comply with all existing and future laws, ordinances and regulations of the Federal, State, and Municipal governments, in any manner affecting his employees, or the conduct of the work, or the materials used or employed in the work.

SOIL AND SITE CONDITIONS: The City of Springfield does not guarantee the accuracy of any information which it may have obtained as to the kind or condition of the soil that may be encountered in the prosecution of the proposed work, neither does the City of Springfield represent that the plans and specifications drawn are based upon any data so obtained. The City of Springfield does not make any representation as to the soil conditions to be encountered or as to foundation materials.

The Contractor must, at his own risk, inspect the site of the proposed work and assume all risk as to the nature and behavior of the soil which may be encountered or of soil or water which underlies the work or is adjacent thereto, including any difficulties that may be due to quicksand or other unfavorable conditions that may be encountered in the work, whether apparent upon surface inspection or disclosed only in the process of carrying forward the work.

Attention is called to the requirements of the Specifications with regard to unwatering and coffer dams, to protect foundation work. Previous experience with the tributaries and bodies of water which are above the subject dam indicates that at least 50% to 75% of the normal flow can be completely stopped for a period of no more than three (3) days, by draining Porter Lake and allowing it to refill. Normal flow is considered to be approximately 96 sec.ft. or 4400 gallons per minute.

APPROXIMATE QUANTITIES FOR COMPARING PROPOSALS: The quantities of work as given for each item in the Form of Proposal attached hereto are only approximate, and are assumed solely for the comparison of proposals. They are not guaranteed to be accurate statements or estimates of the quantities of work that are to be performed under this contract, and any departure therefrom will not be accepted as valid grounds for any claim for damages or for loss of profits.

FORM OF CONTRACT: The form of contract to be signed by the successful bidder is to be prepared by the Law Department and is intended to contain the standard provisions for construction work for the City of Springfield. The form of contract may be examined at the Office of the Owner, and the Contractor shall be expected to be fully informed as to its contents and provisions prior to submitting his proposal for the work.

RIGHT TO ACCEPT OR REJECT PROPOSALS: The Owner may consider informal any bid not prepared in accordance with the provisions hereof and may waive any informalities in or reject part or all of any and all bids. Any bid received after the time and date specified shall not be considered.

WITHDRAWAL OF PROPOSAL: Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. No bidder may withdraw a bid within thirty (30) days after the actual date of the opening thereof.

BID SECURITY: Each bid must be accompanied by the certified check of the bidder in an amount of 10% of Bid Price. Such checks will be returned to all except the three lowest formal bidders within five (5) days after the formal opening of bids, and the remaining checks will be returned to the three lowest bidders within forty-eight (48) hours after the Owner and the accepted bidder have executed the contract, or if no contract has been so executed, within thirty (30) days after the date of the opening of bids, upon demand of the bidder at any time thereafter so long as he has not been notified of the acceptance of his bid.

MINIMUM WAGE RATES: Attention is called to the fact that minimum rates have been established for the project by the Commissioner of Labor and Industries, Commonwealth of Massachusetts, and are set forth in the contract documents.

PROPOSAL

To the City of Springfield, Massachusetts, herein called the Owner, acting through its Board of Park Commissioners of the Department of Public Parks, for the repairs and reconstruction of the dam and waterways of the "Cascades" in Forest Park, as shown on the Drawings.

The undersigned as bidder, herein referred to as singular and masculine, declares that the only parties interested in this proposal as Principals are named herein: that this proposal is made without collusion with any other person, firm or corporation; that no officer or agent of the Owner is directly or indirectly interested in this bid; that he has carefully examined the location of the proposed work, the proposed Contract Agreement, and the drawings and specifications therein referred to and he proposed and agrees that if this proposal is accepted he will contract with the Owner, in the form of the copy of the contract deposited in the office of the Owner, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in this contract in the manner and time therein prescribed and according to the requirements of the Engineer as therein set forth and that he will take in full payment for the work thereof the sum specified below, subject to additions or deductions according to the specifications and in all respects according to the terms thereof.

(Note: All prices must be written in ind, in both words and figures for the entire proposal.)

<u>ITEM NO.</u>	<u>ESTIMATED QUANTITY</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE EACH</u>	<u>TOTAL</u>
1	Lump Sum	General Site Work	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)
2A	115 Cu. Yds.	Earth Excavation and Class A Back Fill	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)
2B	130 Cu. Yds.	Earth Excavation and Back Fill	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)

<u>ITEM NO.</u>	<u>ESTIMATED QUANTITY</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE EACH</u>	<u>TOTAL</u>
2C	20 Cu. Yds.	Rock Excavation and Disposal	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)
3	Lump Sum	Cast Iron Pipe and Fittings	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)
4	115 Cu. Yds.	Concrete	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)
5	2700 Lbs.	Concrete Reinforcement	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)
6A	170 Cu. Yds.	Base Stone	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)
6B	100 Tons	Rubble Stone and Rip-rap	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)
7	40 Cu. Yds.	Loaming and Seeding	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$.....)	(\$.....)

TOTAL PROPOSAL

DOLLARS

CENTS

(\$.....)

\* Indeterminate: quantity assumed for comparison of bids.

Note: All prices including the total must be written in words as well as expressed in figures. In case of variation, the written prices shall govern.

All amounts and totals stated above shall be subject to verification by the Owner. In case of variation between unit prices and the amounts and totals stated by the bidder, the unit prices will be considered to be his bid. All bids must be for the entire work and must have each blank space filled in.

The quantities of work as given for each item in this Proposal are only approximate, and are assumed solely for the comparison of proposals. They are not guaranteed to be accurate statements or estimates of the quantities of the work that is to be performed under this contract, and any departure therefrom will not be accepted as valid grounds for any claim for loss of profits.

If written notice of the acceptance of this proposal is mailed, telegraphed or delivered to the undersigned within thirty (30) days after the date of opening of the bids, or any time thereafter before this bid is withdrawn, the undersigned will, within five (5) days after the date of such mailing, telegraphing or delivery of such notice, execute and deliver a contract, with approved sureties, in the form attached hereto.

The undersigned hereby designates as his office to which such notice of acceptance may be mailed, telegraphed or delivered

The undersigned further agrees to comply with the requirements as to conditions of employment, wage rates and hours of labor set forth in the Form of Contract.

The undersigned hereby agrees to complete all the work shown or specified under this contract as shown on the Contract drawings, within..... consecutive calendar days from the date  
(Insert Number)  
specified in the notice to commence work.

A certified check in the amount of at least Ten Percent (10%) of the amount of the bid price accompanies this proposal.

This bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.



Signature and business address of Bidder:

_____	_____
_____	_____
_____	_____
_____	_____

Dated at

The names and addresses of persons interested as principals in this proposal are as follows: (Write first name in full).

_____	_____
_____	_____
_____	_____

The bidder shall state on the line below, if a corporation, the name of the state in which incorporated.

\_\_\_\_\_

The bidder is requested to state below what work of similar character to that included in the proposed contract he has done, and give references that will enable the Owner to judge of his experience, skill, and business standing.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

(Add supplementary page if necessary)

APPROVED  
September 26 1956

SPECIFICATIONS

General Provisions

William F. Sullivan  
Charles P. Walsh  
Hampden County Commissioners

EXTENT OF WORK (Sec. 1) The work contemplated under this contract comprises the clearing and cleaning, the repair and alteration, and the renovation of the dam and waterways comprising the so-called "Cascades" in Forest Park, Springfield, Massachusetts. The Contractor shall furnish all labor, equipment, tools and materials necessary to perform the designated work.

CONTRACT AND WORKING DRAWINGS (Sec. II) The location, general character and important details of the work are shown on the Drawings on file at the Park Department Office, Forest Park, Springfield, Massachusetts and entitled:

Drawing No. D1795-1, Site Plan  
Drawing No. D1795-2, Profiles and Sections  
Drawing No. D1795-3, Sections and Details

The work shall be constructed in accordance with these contract drawings, together with any working drawings which may be furnished from time to time by the Engineer.

For construction purposes, the Contractor will be furnished with three (3) sets of plans and specifications without charge.

SUBMITTED DRAWINGS (Sec. III) Working drawings for steel reinforcement, and built-in equipment shall be submitted in triplicate for approval by the Engineer. No work shall be performed involving such items until approval is obtained.

USE OF THE PREMISES (Sec. IV) The Contractor shall be permitted limited use of the site area. Provisions for delivering and handling materials and equipment at the site, the space for the required storage of materials and equipment and for the field erection of temporary facilities, the order or sequence of the execution of the work, the methods of construction, the general conduct of the work, shall be at all times subject to the approval and direction of the Engineer.

If at any time before the commencement or during the progress of the work, or any part of it, such methods and procedures as used or to be used appear to the Engineer as unsafe, insufficient or improper, he may order the Contractor to increase their safety or efficiency or to improve their character, and the Contractor shall conform to such orders; but the failure of the Engineer to demand any increase of such safety, efficiency, adequacy or any improvements shall not release the Contractor from his obligation to secure the safe conduct and quality of the work specified.

DELIVERY AND HANDLING OF MATERIALS (Sec. V) The Contractor shall make his own arrangements for delivery and handling of equipment and materials as he may require for the prosecution of his work. The location of all temporary power lines, roadways and similar facilities shall be subject to the approval of the Engineer.

DIMENSIONS AND ELEVATIONS (Sec. VI) Figured dimensions on the drawings shall take precedence over the general drawings and shall be considered as explanatory to them, and not as indicating extra work.

If, however, subsequent working drawings by the Engineer shall contain or require extra work, the Contractor shall notify the Engineer within ten (10) days of his receipt of his receipt of such drawings as to the extra charge for the work. Failure to notify the Engineer within such time shall be construed as meaning that the Contractor accepts the drawings and will execute them without claim for extra compensation.

LINES AND GRADES (Sec. VII) The Engineer will furnish the Contractor with bench marks for lines and grades. The Contractor shall, with his own forces, obtain working or construction lines or grades as needed and in accordance with base measurements directed by the Engineer, and subject to check and review by the latter. No extra compensation shall be made to the cost of the Contractor of any of the work or delay occasioned by giving lines and grades, or making other necessary measurements for payment.

MONUMENTS AND LANDMARKS (Sec. VIII) Monuments and landmarks shall not be molested or removed by the Contractor or any of his employees without the written consent of the Engineer. Any monument or landmark so removed will be replaced by the Contractor as directed by the Engineer and at the expense of the Contractor.

NIGHT WORK (Sec. IX) No night work or work on Sundays and legal holidays requiring the presence of an engineer or inspector will be permitted, except in case of emergency, and then only to such an extent as is absolutely necessary, and upon approval of the Department of Public Parks. Should permission be obtained to operate an organization for regular or continuous night work, the lighting, safety and other facilities, which are necessary for performing such work at night, shall be provided by the Contractor.

WATER SUPPLY (Sec. X) All water used for construction purposes, as well as the expense of having the water conveyed about the work, must be provided by the Contractor, and the cost of this work shall be considered as having been included in the unit or lump sum prices stipulated for the various items of work to be done under this contract.

ELECTRIC POWER (Sec. XI) The Contractor shall make his own arrangements for electric current or power, as may be required for his work.

SANITARY MEASURES (Sec. XII) Sanitary conveniences for the use of all persons employed on the work shall be constructed and maintained by the Contractor in sufficient number, in such manner and in such places as shall be approved by the Engineer. All persons connected with the work shall be obliged to use them and any employee found violating these provisions shall be discharged and not again employed without written consent. All necessary precautions, including the care of employees, shall at all time be satisfactory to the City Health Department. The Contractor shall promptly and fully comply with all orders and regulations in regard to these matters.

AID TO THE INJURED (Sec. XIII) The Contractor shall keep in his office, ready for immediate use, all articles necessary for giving "First Aid to the Injured". He shall also have standing arrangements for the immediate removal and hospital treatment of any employee who may be injured on the work.

CLEANING UP (Sec. XIV) On or before the date of the final estimate for the work, the Contractor shall tear down and remove all temporary structures built by him, shall remove all construction plant used by him and shall repair and replace all parts of existing embankments, fences or other structures which

were removed or injured by the Contractor's operations or by employees of the Contractor; shall thoroughly clean out all sewers, drains, pipes, manholes and miscellaneous and appurtenant structures, and shall remove all rubbish and leave the grounds in a neat and satisfactory condition.

INSUFFICIENCY OF SAFETY PRECAUTION (Sec. XV) If at any time, in the opinion of the Engineer, the work is not properly lighted, and barricaded, and if under such circumstances the Contractor does not or cannot immediately put the same into proper and approved condition, or if the Contractor or his representative is not upon the ground so that he can be immediately notified of the insufficiency of safety precautions, then the Engineer may put the work into such a condition that it shall be, in his opinion, in all respects safe, and the Contractor shall pay all expenses of such labor and materials as may have been used for this purpose by him or by the Engineer. Such action of the Engineer, or his failure to take such action, shall in no way relieve the Contractor of the entire responsibility for any cost, loss or damage by any party sustained on account of the insufficiency of the safety precautions taken by him or by the Engineer acting under authority of his section.

## GENERAL SITE WORK

### Item 1

Section 1.1 - Unwatering and Cofferdams. The Contractor shall construct and maintain all necessary coffer dams, channels, flumes and/or other temporary diversion and protective works; shall furnish all materials required therefor; and shall furnish, install, maintain and operate all necessary pumping and other equipment for maintaining foundations and other parts of the work free from water as required for constructing each part of the work.

The sequence of operations involving such diversion works to complete the work shall be subject to approval of the Engineer. General information as to the flow characteristics of the present brook is furnished in the "Information to Bidders", but shall not be considered as accurate or binding upon the Engineer or the Owner.

After serving their purpose, all coffer dams and other temporary protective works shall be removed.

Section 1.2 - Preparation of Foundations. After all necessary stripping and excavation have been completed, the foundation areas shall be unwatered and the foundations prepared as follows:

For "Earth Fill Embankment"--Scraping and rolling with the first layers of earth fill to insure compaction and bonding of the new with the existing earth materials.

For "Concrete Foundations"--The surfaces of any rock upon or against which concrete is to be placed shall be prepared to provide adequate bond by roughing and cleaning the rock surfaces. All loose rock fragments, spalls, dirt, gravel and other objectionable materials shall be removed from the rock surfaces. Immediately before concrete is placed, rock surfaces shall be wetted by means of stiff brooms, jets of water or other means approved by the Engineer.

Section 1.3 - Cleaning of Pipes. This Contractor shall flush and clean the present 18" cast iron pipe bypass, and the 12" vitrified clay pipeline to the adjacent lily pond. Such cleaning shall be accomplished by means of a fire hose and pump with sufficient pressure to remove all dirt, scale or other objectionable matter. Removal of any solid obstructions not removed by the above methods shall be by means of power-driven rotary cutters.

Section 1.4 - Permanent Equipment. All permanent equipment and built-in items, such as expansion joints and as indicated on the Drawings or herein specified shall be furnished and installed by the Contractor. Such equipment shall include the following:

<u>Item</u>	<u>Number</u>
Rock Anchors	150
Copper Retarders	50

In addition, this Contractor shall furnish and install the new cast-iron cap and accessories as detailed by the Drawings for the present 18" bypass pipe outlet.

Section 1.5 - Resetting of Existing Stones. Existing granite sidewall stones shall be removed from their present locations on the site, and upon completion of the new core wall shall be reset thereupon.

Section 1.6 - Removal of Existing Stone Walls. Existing field stone walls shall be removed from their present locations on the site as indicated on the drawings and shall be disposed of outside of limits of Forest Park.

Section 1.7 - New Pipe Intakes. Reinforced concrete pipes, 36 inches in diameter shall be installed as new intakes for the present 18" bypass pipe and the new 12" bypass pipe.

Such intakes shall be set so that pipe inverts are as shown on the Drawings. Where necessary, this Contractor shall build stone bases below intakes to assure alignment.

Section 1.8 - Cleaning and Clearing of Site. The areas to be excavated for foundations shall be stripped or excavated to the depths indicated by the Plans. All unsuitable material such as vegetation, roots, or other organic materials shall be removed and disposed of outside of the Forest Park limits. Sod shall be neatly stripped and placed in an area adjacent to the site to be designated by the Engineer.

No trees or cultivated shrubbery shall be removed or damaged by these operations, except those designated as being within the area wherein excavation is to take place.

In addition to the above, and as indicated by the Drawings, and herein specified, the Contractor shall remove all the present silt, debris, masonry, stones, stumps, temporary pipes and the like from the areas defined by Stations 0 + 00 to 1 + 75 and Stations 0 + 60 R and 0 + 60 L along the previous stations centerline shown on the Drawings.

During the progress of the work, all areas effected by the work or by the Contractor's operations shall be kept cleaned of all rubbish, surplus materials and unneeded construction equipment.

This Contractor shall restore or replace, when and as directed, any Park Department Property damaged by his work, equipment or employees to a condition at least equal to that existing immediately prior to the beginning of operations.

Section 1.9 - Payment. Payment for all work under Item 1 shall be based on the lump sum proposed by the Contractor and shall be paid in portions upon completion of each portion of the work in accordance with Contract terms.

## EXCAVATION AND BACKFILL

### Item 2

Section 2.1 - Excavation. The Contractor shall, under Items 2A and 2B make all earth excavations as required for the following:

1. For new concrete core wall.
2. For new concrete aprons and sidewalls, as required.
3. For new 12" cast iron bypass line as required.

Under Item 2C, the Contractor shall remove and dispose of, in a manner approved by the Engineer, any subsurface rock encountered during excavation operations. Surface rock, debris and old brick masonry work shall be removed under Item 1. Clearing of the site, tree removal and the like is also included under Item 1.

Profiles and contours of existing ground elevations and the approximate elevations of the finished grades of the fills around structures to be built under this contract are shown on the Drawings. The contours and elevations of the present ground are believed to be reasonably correct, but do not purport to be absolutely so, and together with any schedule of quantities are presented only as an approximation. The Contractor shall satisfy himself, however, by actual examination of the site of the work, as to the existing contours and elevations and the amount of work required under this Item. If the Contractor is not willing to accept the ground surface elevations indicated upon the Drawings for payment, he shall so notify the Engineer prior to the starting of any excavation work.

Section 2.2 - Unauthorized Excavation. All excavations carried outside of the lines and grades given or specified, together with the disposal of such material, and all excavations and other work resulting from slides, cave-ins, swellings or upheavals, shall be at the Contractor's own cost and expense. All spaces beneath foundations resulting from unauthorized excavations or from slides or cave-ins shall be refilled at the Contractor's expense, with concrete or other suitable material.

Section 2.3 - Additional Excavation. It is expected that satisfactory foundations will be found at the elevations shown on the Drawings, but in case the materials encountered are not suitable, or in case it is found desirable or necessary to go to additional depth, the excavation shall be carried to an additional depth as ordered and refilled as directed. Excavation to additional depths, when ordered, will be paid for under Item 2, or under the appropriate Item where different materials are required.

Section 2.4 - Sheet piling and Shoring. The Contractor shall be responsible for supporting and maintaining excavations required hereunder, and even to the extend of sheet piling or shoring the sides and ends of excavations with timber or other supports. If the sheet piling, braces, shores and stringers or waling timbers or other supports are not properly placed or are insufficient, the Contractor shall provide additional or stronger supports. The requirements of sheet piling or shoring or of the addition of supports shall not relieve the Contractor of his responsibility for their sufficiency.

The Contractor shall remove all such timbering and supports except

as directed by the Engineer.

Section 2.5 - Protection for Existing Structures and Property. All existing pipes, valves, and structures not required to be changed, removed or altered by the work shall be carefully supported and protected from injury by the Contractor without additional compensation, and in case of injury, they shall be restored by him without compensation therefore, to as good condition as that in which they were found.

Tree roots shall not be mutilated nor shall they be cut except by permission of the Engineer. When permitted to cut tree roots the ends shall be cut off smooth, without splitting or shattering. The trunks of the trees shall be carefully protected from damage, and if unavoidable damage occurs, the injured portions shall be neatly trimmed and covered with an application of grafting wax. Power driven excavating machinery, if used, shall be handled with care to prevent damage to trees, particularly to overhanging branches, and branches shall not be cut off except by special permission of the Engineer.

When ordered by the Engineer, the Contractor shall dig up, handle, protect and properly reset hedges, small trees and shrubbery along the line of or adjacent to the work, and they shall take all reasonable care in this work.

The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings, where required for the accommodation of travel and to provide access during construction, and shall remove said structures thereafter.

Section 2.6 - Backfilling. Backfilling of excavations made for concrete side-walls shall be carried out with the previously excavated materials. Such backfill shall be compacted by "puddling" and tamping in layers not exceeding 12 inches in thickness.

Backfilling of excavations made for the new concrete core wall shall be carried out in a manner and with materials hereinafter specified.

No materials shall be placed until unwatering and protection of the work is accomplished.

Section 2.7 - Earth Embankment. The earth fill portions on both the upstream and downstream side of the new concrete core wall, and within the limit lines shown on the Drawings, shall consist of a well-graded mixture of sand and gravel, termed Class A Backfill, meeting the following requirements:

<u>Material</u>	<u>Percent by Weight</u>
Gravel	10%
Sand	75%
Silt	10%
Clay	5%



<u>Sieve No.</u>	<u>Percent Passing by Weight</u>
No. 10	95 - 100%
No. 40	30 - 70%
No. 200	10 - 15%

It is intended that the above requirements serve as a guide to the selection of Class A backfill material, however, no such fill shall be placed until approval of the Engineer is obtained.

Samples of material for Class A backfill shall be submitted to the Engineer, together with sieve analysis reports, and all such other information as he shall designate as being required for approval.

The remaining areas of the work shall be backfilled with bank-run sand and gravel with gravel limited to stones no larger than 1/4" in size. Excess materials from site excavation may also be used as such fill.

Section 2.8 - Placement of Fill. Class A backfill shall be placed in layers not greater than 6" in thickness after rolling. Rolling shall be done with a roller of sufficient weight to insure compaction and with wetting of the fill material, all as directed by the Engineer. Where rolling is not possible, mechanical tampers weighing not less than 20 lbs. shall be used.

Other backfill shall be placed in a similar manner, except that fill layers shall not exceed 12" in thickness after rolling.

No stone or rock fragments weighing over 50 lbs. shall be backfilled into excavations.

Section 2.9 - Finish Lines. The upstream face of the earth fill shall be reasonably true to line and grade, and all projections of more than 6" outside the neat lines of the earth fill shall be removed before rip-rap is placed.

In other areas, backfilling shall be done to finish lines and grades as shown on the Drawings.

Section 2.10 - Rock Excavation. The Contractor under Item 2C shall excavate any sub-surface rock within the lines and grades as shown or required and shall satisfactorily dispose of such material.

No rock shall be considered for payment unless it is exposed to view and measured for payment by the Engineer.

Section 2.11 - Measurement and Payment. All materials to be paid for under Items 2A and 2B shall be measured in cut, and unless otherwise specified, shall be paid for only once, whether the material be placed directly in its final position or rehandled.

Where the limits of excavation for one structure intersect or overlap the limits of excavation for another structure, no additional excavation shall be measured for payment on account of this intersection or overlapping.

Payment will be made only for excavation within the lines and grades given and within the following defined limits:

Excavation for structures, unless otherwise specified, shall be measured by the vertical planes distant four (4) feet further apart than the outside neat lines of the foundations of the structure and parallel thereto, and from the original surface of the ground to a surface following the contour of the outside neat lines of the bottoms of the structures.

No allowance will be made for excavation beyond the above defined limits when made by the Contractor for working space, pump sumps and drainage ditches, or other like purposes.

The unit prices stipulated per cubic yard for excavation and backfill under Items 2A and 2B shall include the excavation and disposal of all materials; the furnishing, placing and removing of all sheeting and shoring; the storage, rehandling and disposal of all excavated material; the transporting, backfilling and compacting of fills; the protection of existing structures; and the furnishing of all labor, materials, tools and appliances necessary to complete the work as specified or as shown.

Item 2C shall apply to rock excavation, and the price bid therefor shall include cost of same over and above cost of earth excavation.

## CAST-IRON PIPE

### Item 3

Section 3.1 - General. Under Item 3, this Contractor shall furnish and install cast-iron pipe as shown on the Drawings or herein specified, or both, as follows:

1. New 12" cast-iron pipe bypass complete with pipe fittings.

Section 3.2 - Materials. Cast-iron pipe and fittings shall be mold cast, bell and spigot pipe conforming to the requirements for Class D, AWWA pipe.

Section 3.3 - Joints. Joints shall be made by partially filling the annular space between spigot and bell with jute or oakum lightly caulked. Molten lead shall then be poured and firmly caulked in place.

Section 3.4 - Laying. Cast-iron pipe shall be laid to the lines and elevation shown on the Drawing and care shall be taken that such pipe is supported in a manner directed by the Engineer.

Section 3.5 - Payment. Under Item 3, this Contractor shall receive a lump-sum payment for furnishing and installing all cast-iron pipe and fittings herein described.

## CONCRETE

### Item 4

Section 4.1 - General. Under Item 4, the Contractor shall furnish all labor and materials to complete the concrete herein described, or shown on the Drawings, or both, as follows:

1. Footings
2. New concrete core wall
3. New concrete aprons and sidewalls
4. New concrete base slab in pool

All cement shall be site-mixed or ready-mixed as produced by a plant acceptable to the Engineer.

Section 4.2 - Concrete Quality. All concrete shall meet the following limiting requirements:

1. Minimum allowable compressive strength at 28 days shall be 2500 psi.
2. Maximum allowable net water content, per sack of cement, shall be 7 gallons.
3. Minimum amount of cement per cubic yard of concrete shall be 4 3/4 bags.
4. Consistency as measured by the slump test shall be 2 to 4 inches.

Section 4.3 - Portland Cement. All cement used on the work shall be American-made portland cement, free from water-soluble salts or alkalies which will cause efflorescence on exposed surfaces. The cement manufacturer shall have a well-established reputation for producing a uniform, high-quality product. Unless otherwise approved by the Engineer, cement from only one mill shall be used throughout the work. All cement used in exposed work shall be uniform in color.

Air-entraining cement shall not be used.

Normal portland cement shall be Type II conforming to the ASTM Standard Specifications for Portland Cement, Designation C150-49, and to Federal Specification SS-C-192 for Cements; Portland.

High-early-strength cement may be used only with the written permission of the Engineer, but no additional payment will be made to the Contractor for the use thereof. If used, it shall be Type III conforming to the above-mentioned ASTM and Federal Standard Specifications.

All cement to be used in the work shall be subject to testing to determine that it conforms to the requirements of the specifications. The methods of testing shall conform to the appropriate specifications, but the place, time frequency, and method of sampling will be determined by the Engineer in accordance with the particular conditions of this project.

When used in the work, cement shall be free from lumps and partially or wholly set cement.

Section 4.4 - Admixtures. Admixtures causing accelerated setting of cement in

concrete shall NOT be used. The use of admixtures to improve workability or durability, or for waterproofing, will not be permitted except by written consent of the Engineer and then only under close laboratory control.

Section 4.5 - Water. The water for concrete shall be clean, fresh, and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances.

Section 4.6 - Fine Aggregate. Fine aggregate shall consist of inert natural sand conforming to the ASTM Standard Specifications for Concrete Aggregates, Designation C33-49, except that the test for organic impurities shall conform to the ASTM Standard Method of Test for Organic Impurities in Sands for Concrete, Designation C40-33, and also conforming to the following detailed requirements:

Grading:

<u>Sieve</u>	<u>Percent retained</u>
#4	0-5
16	25-40
50	70-85
100	93-97

Fineness modulus: 2.50 - 3.15

Organic impurities: Not darker than Fig. 2

Silt: Not more than 2%

Mortar strength: Compression ratio not less than 95%

Soundness: Weighted average loss when subjected to 5 cycles of the soundness test using magnesium sulfate, not more than 10%

Section 4.7 - Coarse Aggregate. Coarse aggregate shall consist of well-graded gravel of crushed stone, conforming to the ASTM Standard Specifications for Concrete Aggregates, Designation C33-49 except that the test for organic impurities shall conform to the ASTM Standard Method of Test for Organic Impurities in Sands for Concrete, Designation C40-33, and also conforming to the following detailed requirements:

	<u>Designated size</u>				
	2 in.	1-1/2 in.	1 in.	3/4 in.	1/2 in.
	<u>Percent passing sieve</u>				
2-in. sieve	95-100	100			
1-1/2-in. sieve		95-100	100		
1-in. sieve	50-70		90-100		
3/4-in. sieve		50-70		100	100
1/2-in. sieve	15-30		25-60		90-100
3/8-in. sieve		10-30		20-55	
No. 4 sieve	0-5	0-5	0-10	0-10	0-15
Fineness modulus (No. 20)	7.45	7.20	6.95	6.70	6.10

Organic impurities:	Not darker than Fig. 1
Silt:	Not more than 1.0%
Soundness:	Weighted average loss when subjected to 5 cycles of the soundness test using magnesium sulfate, not more than 14 percent

Aggregate used in concrete shall not exceed the following maximum designated sizes:

1 1/2-in. for footings.  
1-in. for all other concrete.

Section 4.8 - Samples of Aggregates. If required, the Contractor shall submit samples of fine and coarse aggregates to the Engineer at least two weeks before the Contractor proposes to use them in the work. At least one cubic foot of each size of aggregate shall be submitted in suitable containers. All samples shall be plainly and neatly labeled indicating the source, where proposed to be used, date, and name of collector.

Materials shall not be delivered to the site or used until the samples have been approved, and, as used, they shall in all respects be equal to the approved samples.

Section 4.9 - Testing Aggregates and Determining Proportions. No concrete shall be used in the work until the materials and proportions have been approved by the Engineer.

The conformity of aggregates to the specifications hereinbefore given, and the actual proportions of cement, aggregates, and water necessary to produce concrete conforming to the requirements set forth in Article 4.2, shall be demonstrated and determined by tests made with representative samples of the materials to be used on the work. All such tests shall be made by an approved laboratory at the expense of the Contractor.

Reports on the tests of aggregates, and a statement of the proportions proposed for the concrete mixture, shall be submitted in triplicate to the Engineer for approval as soon as possible, but not less than 5 days prior to the proposed beginning of the concrete work. If the Contractor can furnish similar, reliable information from an acceptable source, and of date not more than 4 months prior to the time when concrete will be used on this project, the above requirements for laboratory tests may be modified by the Engineer.

The Engineer shall have the right to make check tests of aggregates and concrete, using the same materials, and to order changes as may be necessary to meet the specified requirements. Cylinders made in the field shall be made and cured in accordance with the ASTM Standard Method of Making and Curing Concrete Compression and Flexure Test Specimens in the Field, Designation C31-49. Laboratory tests and laboratory-made cylinders shall conform to the appropriate tests and procedures specified above for testing aggregates and for determining the relation between water content and compressive strength.

If concrete of the required characteristics is not being produced as the work progresses, the Engineer may order such changes in proportions or materials, or both, as may be necessary to secure concrete of the specified quality. The Contractor shall make such changes at his own expense and no extra compensation will be allowed because of such changes.

If, as the work progresses, the characteristics of the materials originally approved undergo a change, or if the Contractor wishes to use other materials, he shall submit, for approval, evidence that the new combination of materials will produce concrete meeting the stated requirements and will not result in objectionable changes in the color or appearance of the work.

Section 4.10 - Measuring Materials. All materials for concrete, including water, shall be measured with equipment and facilities suitable for their accurate measurement and capable of being readily adjusted to changing conditions as required.

Cement in whole standard sacks need not be measured.

Water shall be measured by volume or weight; the error of measurement shall not exceed  $1/2$  of 1 per cent.

Unless otherwise authorized, cement in bulk or fractional sacks, and each size of aggregate, shall be weighed separately; the error of measurement, for successive quantities, shall not exceed 1 percent.

Where volumetric measurements are authorized, the weight proportions shall be converted to equivalent volumetric proportions and suitable allowance shall be made for variations in the moisture condition of the aggregates, including the bulking of fine aggregate.

Section 4.11 - Site-Mixed Concrete. Concrete to be produced at the site shall be mixed in an approved batch mixer with a capacity of not less than  $1/2$  cu. yd., except for small quantities which, by permission, are hand mixed. The volume of the mixed batch shall not exceed the manufacturer's rated capacity of the mixer.

The minimum mixing time for each batch (from the time when all solid materials and water are in the drum) shall be  $1-1/2$  min. for mixers of 1-cu. yd. capacity or less; for mixers of larger capacity, the mixing time shall be increased 30 sec. for each additional half cubic yard or fraction thereof. The mixer shall revolve at uniform peripheral speed of about 200 fpm. The entire batch shall be discharged before the mixer is recharged.

If the concrete is mixed by hand it shall be done on a suitable surface. The cement and aggregates shall be mixed dry until an even and uniform color has been attained throughout. The proper quantity of water shall then be added and the whole mass turned with square-edged shovels until it has become intimately mixed.

Section 4.12 - Ready-Mixed Concrete. Ready-mixed concrete will be permitted provided that all requirements therefor herein set forth are fully complied with. The ready-mixed concrete plant and all operations pertaining to the production of the concrete shall be subject to the inspection and specific approval of the Engineer. Methods of batching mix constituents shall conform to the requirements set forth above under "Measuring Materials."

Ready-mixed concrete shall be transported to the site in watertight agitator or mixer trucks. The quantity of concrete to be mixed or delivered in any one batch shall not exceed the rated capacity of the mixer or agitator for the respective conditions as stated on the name plates.

Central-mixed concrete shall be plant-mixed a minimum of 1-1/2 min. per batch and then shall be truck-mixed or agitated to minimum of 8 min. Agitation shall begin immediately after the pre-mixed concrete is placed in the truck and shall continue without interruption until discharge. For transit-mixed concrete the major portion of the mixing water shall be added and mixing started immediately after the truck is charged. Mixing (at mixing speed) shall be continued for at least ten minutes, followed by agitation without interruption until discharge. Concrete shall be discharged at the site within 1-1/2 hr. after water was first added to the mix, and shall be mixed at least 5 min. after all water has been added.

Attention is called to the importance of dispatching trucks from the batching plant so that they shall arrive at the site of the work just before the concrete is required, thus avoiding excessive mixing of concrete while waiting or delays in placing successive layers of concrete in the forms.

Section 4.13 - Remixing Concrete. Concrete which has become compacted or segregated during transportation to or on the site of the work shall be satisfactorily remixed just prior to being placed in the forms.

Partially hardened concrete shall not be deposited in the forms. The retempering of concrete which has partially hardened (that is, the remixing of concrete with or without additional cement, aggregate, or water) will not be permitted.

Section 4.14 - Placing and Compacting Concrete. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed by daylight of the same day.

No concrete shall be placed on frozen subgrade or in water, or until the subgrade, forms, and preliminary work have been approved. No concrete shall be placed until all materials to be built into the concrete have been set and have been approved by the various trades and the Engineer. All such materials shall be thoroughly clean and free from rust, scale, oil, or any other foreign matter.

Forms and excavations shall be free from water and all dirt, debris, and foreign matter when concrete is placed. Except as otherwise directed wood forms and embedded wood called for or allowed shall be thoroughly wetted just prior to placement of concrete.

Concrete placed at air temperatures below 40 deg. F. shall have a minimum temperature of 60 deg. F. when placed.

Concrete shall be transported from the mixer to the place of final deposit as rapidly as practicable and by methods which will prevent separation of ingredients and avoid rehandling.



Chutes for conveying concrete shall be metal or metal-lined and of such size, design, and slope as to ensure a continuous flow of concrete without segregation. The slope of chutes shall be not flatter than 1 on 2 and all parts of a chute shall have approximately the same slope. The discharge end of the chute shall be provided with a baffle, or, if required, a spout, and the end of the chute or spout shall be kept as close as practicable to, but in no event more than 5 ft. above, the surface of the fresh concrete. When the operation is intermittent, the chute shall discharge into a hopper.

For any one placement, concrete shall be deposited continuously in layers of such thickness, that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section, and so as to maintain, until the completion of the unit, an approximately horizontal, plastic surface.

No wooden spreaders shall be left in the concrete.

During and immediately after being deposited, concrete shall be thoroughly compacted by means of suitable tools and methods such as internal-type mechanical vibrators operating at not less than 5,000 rpm., or other tool spading, to provide the required density and quality of finish.

The concrete shall be thoroughly rodded and tamped about embedded materials so as to secure perfect adhesion and prevent leakage. Care shall be taken to prevent the displacement of such materials during concreting.

Section 4.15 - Bonding Concrete at Construction Joints. In order to secure full bond at construction joints, the surfaces of the concrete already placed, including vertical and inclined surfaces, shall be thoroughly cleaned of foreign materials and laitance, if any; roughened with suitable tools such as picks, wire brushes, etc.; and recleaned by a stream of clean water or compressed air. The old concrete at the joint shall be saturated with water shortly before the new concrete is to be deposited. After free or glistening water disappears, the old concrete shall be given a thorough coating of neat cement grout mixed to a plastic consistency. The coating shall be at least 1/8 in. thick on vertical surfaces and 1/4 in. thick on horizontal surfaces, and shall be well scrubbed in by means of stiff bristle brushes wherever possible. New concrete shall be deposited before the neat cement dries.

Section 4.16 - Curing and Protection. All concrete work shall be protected against damage from the elements and defacement of any nature during construction operations.

Water shall not be permitted to rise on concrete within 24 hr. after it is placed, nor shall running water be allowed to flow over completed concrete within 4 days after it has been placed.

All concrete, particularly slabs and including finished surfaces, shall be treated immediately after concreting or cement finishing is completed to provide continuous moist curing for at least 7 days, regardless of the adjacent air temperature. Walls and vertical surfaces may be covered with continuously saturated burlap, or kept moist by other approved means. Horizontal surfaces, slabs, etc., shall be ponded to a depth of 1/2 in. wherever practicable, or kept continuously wet by use of lawn sprinklers or a complete covering of continuously saturated burlap, or by other approved means.

For at least 7 days after having been placed, all concrete shall be so protected that the temperature at the surface will not fall below 50 deg. F. The methods of protecting the concrete shall be as specified in Section XVIII of the General Provisions of the Specifications and shall be subject to approval.

No manure, salt, or other chemicals shall be used for protection.

The above-mentioned 7-day periods may be reduced to 3 days in each case if high-early-strength cement is used in the concrete.

Wherever practicable, finished slabs shall be protected from the direct rays of the sun to prevent checking and crazing.

Section 4.17 - Trimming and Repairs. It is the intent of this specification to require forms, mixture of concrete, and workmanship so that concrete surfaces, when exposed, will require no patching.

As soon as the forms have been stripped and the concrete surfaces exposed, fins and other projections shall be removed, recesses left by the removal of form ties shall be filled, and surface defects which do not impair structural strength shall be repaired.

Defective concrete shall be cut normal to the surface until sound concrete is reached, but not less than 1 in. deep. The remaining concrete shall be thoroughly roughened and cleaned. Concrete around the cavity or the form-tie recess shall be thoroughly wetted and promptly painted with a 1/16-in. brush coat of neat cement grout mixed to the consistency of heavy cream. The hole shall then be filled with mortar.

Mortar shall be a 1:1-1/2 cement and sand mix with sufficient white cement or fine limestone screenings in lieu of sand, to produce a surface matching the adjoining work. Cement and sand shall be from the same sources as in the parent concrete.

For filling form-tie recesses, the mortar shall be mixed slightly damp to the touch (just short of "balling"), hammered into the recess until it is dense and an excess of paste appears on the surface, and then troweled smooth. Mortar in patches shall be applied so that after partial set it can be compressed and rubbed to produce a finish flush and uniform in texture with the adjoining work. All patches shall be warm-moist cured as above specified.

The Contractor shall be responsible for the adherence of mortar used in repairing concrete. He shall prepare the cavity and apply the repair material in such manner that this end may be attained. Unless specifically otherwise required, mortar shall not be applied as a coating or plastering over the surfaces, but each void shall be individually filled.

The use of mortar patching as above specified shall be confined to the repair of small defects in relatively green concrete. If substantial repairs are required, the defective portions shall be cut out to sound concrete and the masonry replaced by means of a cement gun, or the masonry shall be taken down and rebuilt, all as the Engineer may decide or direct.

Section 4.18 - Concrete Finish. The top surface of all concrete aprons and slabs shall be brought to a true, even surface to the elevations shown on the

Drawings. Wood screeds shall be set at frequent intervals to permit the use of a long straight edge. After screeding such surfaces shall be floated with a wood float.

Exposed surfaces of concrete sidewalls shall be finished after the removal of forms, by cutting back all form ties, pointing up all voids with a 1:2 cement mortar and rubbing with a carborundum stone to remove all joint marks, bellies, projections and loose material.

Section 4.19 - Forms. Forms shall be used for all concrete work including footings, except as otherwise permitted. Forms shall be so constructed and placed that the resulting concrete will be of the shape, lines, dimensions, and to the elevations indicated on the drawings or specified, and exposed concrete will be substantially free from board or grain marks, poorly matched joints, and other irregularities or defects.

Forms shall be made of wood, metal, or other approved material. Wood forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots; where used for exposed surfaces, boards shall be dressed and matched. Plywood shall be sanded smooth and fitted with tight joints between panels. Metal forms shall be of an approved type for the class of work involved and of the thickness and design required for rigid construction.

Suitable molding or bevels shall be placed so as to produce a 3/4-in. chamfer on all exposed projecting corners.

Forms shall be sufficiently rigid to prevent displacement or sagging between supports, and so constructed that the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.

All forms shall be oiled before reinforcement is placed, with an approved nonstaining oil or liquid form coating.

Before form material is re-used, all surfaces that are in contact with the concrete shall be thoroughly cleaned, all damaged places repaired, and all projecting nails withdrawn.

Form ties to be encased in concrete shall not be made of through-bolts or common wire, but shall be of a well-established type, so made and installed as to embody the following features:

- a. After removal of the protruding part of the tie, there shall be no metal nearer than 1 in. to the face of the concrete.
- b. That part of the tie which is to be removed shall be at least one-half inch in diameter, or, if smaller, it shall be provided with a wood or metal cone 1 in. long placed against the inside of the forms. Cones shall be carefully removed from the concrete after the forms have been stripped.
- c. Ties which pass through walls subject to hydrostatic pressure shall be provided with approved waterstops such as tightly fitting washers.

Section 4.20 - Removing Forms. Except as otherwise specifically authorized by

the Engineer, forms shall not be removed prior to reaching the following number of day-degrees\*:

<u>Forms for</u>	<u>Day-degrees</u>
Walls and vertical surfaces	100

\* Day-degree: total of number of days times average daily air temperature at surface of concrete. For example, 5 days at a daily average temperature of 60 deg. F. equals 300 day-degrees.

Section 4.21 - Measurement and Payment. Under Item 4, all concrete required for the work shall be measured and paid for by the cubic yard in place in accordance with the Drawings or as directed by the Engineer.

No deduction shall be made for the volume of pipes, metal work and like equipment built into concrete work.

The price for Item 4 shall include compensation for furnishing and placing all concrete as herein specified, including forms.

## CONCRETE REINFORCEMENT

### Item 5

Section 5.1 - General. Under Item 5, the Contractor shall furnish and place all concrete reinforcement as indicated on the drawings or herein specified. Steel bars shall be deformed bars of the shapes and sizes indicated on the Drawings.

Bar sizes designated on the drawings by inch-dimensions and in the ASTM Specifications by number shall be considered as equivalent in accordance with the following tabulation:

<u>Inch Dimension</u>	<u>Number</u>	<u>Inch Dimension</u>	<u>Number</u>
1/4	-	7/8	7
3/8	3	1	8
1/2	4	1 in. sq.	9
5/8	5	1-1/8 in. sq.	10
3/4	6	1-1/4 in. sq.	11

Section 5.2 - Quality. Steel bars shall be newly rolled stock substantially free from mill scale, rust, dirt, grease, or other foreign matter. Bars shall be intermediate grade billet steel conforming to the ASTM Tentative Specifications for Billet-Steel Bars for Concrete Reinforcement, Designation A15-50T.

Section 5.3 - Deformations. Deformations on bars for concrete reinforcement shall conform to the ASTM Tentative Specifications for Minimum Requirements for the Deformations of Deformed Steel Bars for Concrete Reinforcement, Designation A305-50T.

Section 5.4 - Fabricating Reinforcement. Reinforcement shall be accurately formed to the dimensions indicated on the drawings. Stirrups and tie bars shall be bent around a pin having a diameter not less than 2 times the minimum thickness of the bar. Bends for other bars shall be made around a pin having a diameter not less than 6 times the minimum thickness except for bars larger than 1 in. in which case the bends shall be made around a pin of eight bar diameters. All bars shall be bent cold.

Bars shall be shipped to the work with bars of the same size and shape fastened in bundles with metal identification tags giving size and mark securely wired on.

Section 5.5 - Placing Reinforcement. Before being placed in position, reinforcement shall be thoroughly cleaned of loose mill and rust scale, dirt, and other coatings, including ice, that reduce or destroy bond. Where there is delay in depositing concrete after reinforcement is in place, bars shall be reinspected and cleaned when necessary.

Reinforcement shall be accurately positioned as indicated on the drawings, and secured against displacement by using annealed iron wire ties or suitable clips at intersections. Reinforcement shall be supported by concrete or metal supports, spacers, or hangers. Wood blocks, stones, brick chips, etc., shall not be used.

Reinforcement which is to be exposed for a considerable length of time after having been placed shall be painted with a heavy coat of cement grout if required.

Section 5.6 - Measurement and Payment. The weights used in computing the weights of steel per linear foot of the various sizes of bars required shall be the nominal weights adopted in 1934 by the Concrete Reinforcing Steel Institute, as follows:

<u>Size of bar, in.</u>	<u>Wt., lb./ft.</u>	<u>Size of bar, in.</u>	<u>Wt., lb./ft.</u>
1/4 round	0.167	7/8 round	2.044
3/8 "	0.376	1 "	2.670
1/2 "	0.668	1 square	3.400
1/2 square	0.850	1-1/8 "	4.303
5/8 round	1.043	1-1/4 "	5.313
3/4 "	1.502		

The quantity of metal to be paid for under Item 5 shall be the number of pounds actually placed in accordance with the drawings or as ordered. It shall not include any waste metal due either to the nature of the construction or to the fact that the lengths supplied are too long or too short for their purpose. The quantity paid for shall, however, include extra metal in laps where authorized due to the fact that a single bar would be unreasonably long. Should the Contractor use shorter bars than directed, he shall provide the required lap and bear the expense of the extra steel and labor that are required.

Wire mesh called for by the Drawings shall also be paid for under Item 5 and shall be considered as weighing 21 lbs. per 100 sq. ft.

## STONE WORK

### Item 6

Section 6.1 - Site and Material. This Contractor shall be furnished by the Owner with large-sized Longmeadow Brownstones, in the quantity noted. Such stone is presently located at Blunt Park, Springfield, Massachusetts and ranges in size from 1/2 to 2 cubic yards, with a maximum dimension of eight (8) feet.

This Contractor shall furnish, in the quantity noted, Longmeadow Brownstone rubble, with a maximum dimension of not more than eighteen (18) inches and a minimum dimension of not less than three (3) inches. Such stone shall have large flat broad faces to facilitate setting without mortar or anchors, and shall also be suitable for use as rip rap on the upstream face of the earth embankment.

Section 6.2 - Handling, Transportation and Setting. All stone shall be loaded and transported to the site of the work by the Contractor. Unloading shall be done in such a manner as to minimize breakage of large stones and to facilitate placement in the concrete aprons.

Base course stones of the larger sizes, selected by the Engineer, shall be set into the concrete aprons so as to form a flat bearing course for smaller stones placed above. Placement shall be by means of a crane or similar mechanical equipment to minimize breakage of the stone or damage to the concrete aprons and sidewalls. Rubble stone shall then be placed in an approved manner to create an appearance of a natural stone out-cropping.

No mortar shall be used to bond stones together.

Rubble size stone, with at least one broad flat surface, shall be hand placed on the upstream face of the earth embankment in the area indicated by the Drawings.

Section 6.3 - Cleaning of Stone. After final placement of the stone in the concrete aprons, the exposed surfaces of the larger stone furnished by the Owner shall be brushed with a stiff wire brush to remove all traces of mortar and foreign matter. Washing with acid solution shall not be permitted, except with specific approval of the Engineer.

Section 6.4 - Payment. The unit prices stipulated per cubic yard under Items 6A and 6B shall include purchase of stone not furnished by the Owner, loading, transportation, handling, setting in the areas indicated, and cleaning all as described herein.

Section 6.5 - Measurement. The quantity of stone to be paid for under Items 6A and 6B shall be the number of cubic yards furnished as measured by individual measurements in the case of larger stones furnished by the Owner under Item 6A, and by tonnage of rubble stone furnished under Item 6B.

## LOAMING AND SEEDING

### Item 7

Section 7.1 - Work Included. In the areas adjacent to the new concrete aprons and sidewalls, the Contractor shall spread on all stripped areas at least 6" of new top soil to the finished grades indicated by the Drawings.

Top soil shall be raked smooth and leveled and seed shall be sown at the rate required of 6 pounds per thousand square feet.

Section 7.2 - Materials. Top soil shall be approved by the Engineer and shall be fertilized with a commercial fertilizer spread evenly at the rate of 40 pounds per thousand square feet.

Lawn seed shall be fresh and clean, composed of the following varieties mixed in proportions and testing as follows:

		<u>Germination</u>
Fancy Red Top	10 parts	90%
Kentucky Blue	50 parts	85%
Chewings New		
England Fescue	20 parts	85%
Perennial Rye	10 parts	85%
White Dutch		
Clover	10 parts	85%

Section 7.3 - Payment. Under Item 7 all loaming and seeding required for the work shall be measured and paid for by the cubic yard in place.



Springfield - Lake Lorraine, Loon Pond and Five Mile Pond



1950 Reports

Massachusetts Comm Chapter 342 Acts of 1951. Rights of Way to Great Ponds. Includes Petition for Assessment of Damages by Joyland Realty Corporation vs. Hampden County et al - Hampden County Superior Court Case #82265.	
Abutters	Springfield Sportsmen's Clubs
Abutters	Lake Lorraine Civic Association
City/Town	Springfield
Name	Joyland Realty Corporation
Streets	Lake Drive
Streets	Lorimer Street
Water	Lorraine Lake
Water	Five Mile Pond
Water	Loon Pond

*Treasurer*  
Erwin Bischoff  
Box 3, R. F. D. 1  
Holyoke, Mass.  
Tel. Hol. 2-4667

*President*  
Harold Oehler  
Pleasant Street  
Granby, Mass.  
Tel. Granby 3-32

*Secretary*  
E. C. Vasa  
164 Denver Street  
Springfield, Mass.  
Tel. Spfld. 6-6149

Hampden County Women's  
Rod and Gun Club  
Ludlow Fish and Game  
Association, Inc.  
West Springfield Fish and  
Game Club  
Wilbraham Fish and Game  
Club, Inc.  
Springfield Sportsman's  
Club, Inc.  
Springfield Revolver Club  
Paper City Rod and Gun Club



Agawam Sportsmans Club, Inc.  
Chicopee Rod and Gun Club  
Fairview Fish and Game  
Association, Inc.  
Holyoke Fish and Game  
Assn. Inc.  
Western Massachusetts  
Beagle Club  
Westfield Beagle Club, Inc.  
The Springfield Salties  
Chester Rod and Gun Club  
Mawaga Sporting Club  
Chicopee Sportsman's Club

*Copy*

## The Council of Sportsmen's Clubs of Hampden County

164 Denver St.  
Springfield 9 Mass.  
December 1st. 1950

Attorney General  
State House  
Beacon Hill  
Boston, Mass.

Dear Sir:

The undersigned ten citizens of Massachusetts, respectfully represent that in their opinion, public necessity requires a right of way for public access to the shores of Five Mile Pond, Loon Lake and Lake Lorraine, great Ponds in Springfield (City of) and request that a Public Hearing be held by the Joint Board under the provisions of section 18A of chapter 91 of the General Laws, and such further action taken by said Board as may be necessary under the provisions of said statute.

(Original list of names sent to Dep. of Public Works. Copy of list typed herein for your edification).

Francis H. Thorpe	490 South St.	Holyoke Mass.
William H. Yeadon	526 So. Summer St.	Holyoke Mass.
Harold P. Worthington	70 Elm St.	Agawam Mass.
LeRoy A. Fournier	14 Eldridge St.	Springfield Mass.
Max B. Monical	30 Foster St.	Springfield Mass.
George Friedrich	69 Lawlor St.	Holyoke Mass.
William B. Smith	146 Bowles St.	Springfield Mass.
Adrian C. Blais	623 McKinstery St.	Chicopee Falls Mass.
Emils C. Dauphinais	126 Winsor St.	Ludlow Mass.
Eugene R. Charest	40 Rowland St.	Springfield Mass.
George Chartier	51 Lafayette	Chicopee Falls Mass.
Frank Musiak	15 Leary Ave.	Chicopee Falls Mass.
Raymond W. Fleury	473 Broadway	Chicopee Falls Mass.
Arthur J. Topham	11 Old Point St.	Springfield Mass.
Ernest L. Bacon	492 Stony Hill Rd.	Wilbraham Mass.
Lester J. Sherry	581 Broadway	Chicopee Falls Mass.
Clayton R. Brown	85 Hampden St.	W. Springfield Mass.

Elizabeth C. Vasa

Secretary

*Elizabeth C Vasa*

*Treasurer*  
Erwin Bischoff  
Box 3, R. F. D. 1  
Holyoke, Mass.  
Tel. Hol. 2-4667

*President*  
Harold Oehler  
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Hampden County Women's  
Rod and Gun Club  
Ludlow Fish and Game  
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Game Club  
Wilbraham Fish and Game  
Club, Inc.  
Springfield Sportsman's  
Club, Inc.  
Springfield Revolver Club  
Paper City Rod and Gun Club



Agawam Sportsmans Club, Inc.  
Chicopee Rod and Gun Club  
Fairview Fish and Game  
Association, Inc.  
Holyoke Fish and Game  
Assn. Inc.  
Western Massachusetts  
Beagle Club  
Westfield Beagle Club, Inc.  
The Springfield Salties  
Chester Rod and Gun Club  
Mawaga Sporting Club  
Chicopee Sportsman's Club

## The Council of Sportsmen's Clubs of Hampden County

To the County Commissioners.  
Springfield Mass.

164 Denver Street.  
Springfield 9 Mass.  
December 2nd. 1950.

Gentlemen:

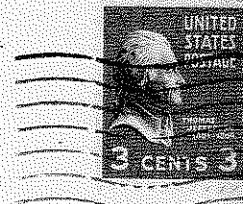
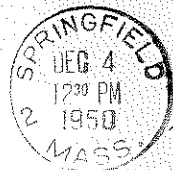
Inclosed you will find a copy of letter sent to Dept. of Public Works  
Boston, Mass. to the Attorney General and to you.

For sometime we, of this council have thought that a movement should be  
made to clarify the situation now existing at these great Ponds. This  
is the result of many hours of discussion and work by the Council.

Please give this matter your consideration as well as your help.

THE COUNCIL of SPORTSMEN'S CLUBS  
of  
HAMPDEN COUNTY

E. C. Vasa Secretary  
164 Denver St.  
Springfield 9 Mass.



County Commissioners Office  
Court St.  
Springfield Mass.

December 14, 1950

E. C. Vasa, Secretary,  
The Council of Sportsmen's Clubs  
of Hampden County,  
164 Denver Street,  
Springfield 9, Massachusetts.

Gentlemen:

This will acknowledge receipt of your letter of December 2, 1950 and an accompanying copy of letter dated December 1, 1950 addressed to the Attorney General, Boston, Mass.

The County Commissioners are giving their most serious consideration to the contents of your petition and wish to assure your group that when the Mass. Department of Public Works holds hearings on this matter, the County Commissioners will have a representative present at the hearings. Be assured of our wishes for continued success.

Very truly yours,

COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

WJF/N

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

# WESTERN UNION

1201

SYMBOLS

DL=Day Letter  
NL=Night Letter  
LT=Int'l Letter Telegram  
VLT=Int'l Victory Ltr.

W. P. MARSHALL, PRESIDENT

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

BB089

B. SGB103 RX PD=INDIAN ORCHARD MASS 31 1056A= 1951 JAN 31 AM 11 12

HAMPDEN COUNTY COMMISSIONERS=

HAMPDEN COUNTY COURT HOUSE=

37 ELM ST DLR SPRINGFIELD MASS=

CONSIDER IMPERATIVE THAT THE SELECTION OF A RIGHT OF WAY AT LAKE LORRAINE BE PUT OFF UNTIL OUR EXECUTIVE COMMITTEE MEETS WITH YOU =

STANLEY STEFANEK PRESIDENT OF LAKE LORRAINE CIVIC ASSOCIATION =

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

**THE COMMONWEALTH OF MASSACHUSETTS**

In the Year One Thousand Nine Hundred and Fifty-one

**AN ACT** PROVIDING FOR THE ESTABLISHMENT OF A RIGHT OF WAY FOR PUBLIC ACCESS TO LOON POND IN THE CITY OF SPRINGFIELD.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows: SECTION 1. The county commissioners of Hampden county are hereby authorized and directed to lay out a right of way for public access to Loon pond in the city of Springfield, in accordance with plans to be approved by the department of public works and showing the location and dimensions of such right of way. If it is necessary to acquire land for the purpose of laying out such right of way, said county commissioners shall at the time such right of way is laid out take such land by eminent domain under chapter seventy-nine of the General Laws. Any person sustaining damages in his property by the laying out of such right of way, or by specific repairs or improvements thereon, shall be entitled to recover the same under said chapter seventy-nine; provided, that the right to recover damages, if any, by reason of the laying out of such right of way, shall vest upon the recording of the order of taking by said county commissioners and that no entry or possession for the purpose of constructing a public way on land so taken shall be required for the purpose of validating such taking or for the payment of damages by reason thereof. SECTION 2. The city of Springfield, from time to time, may make specific repairs on or improve such right of way to such extent as it may deem necessary, but neither the county of Hampden nor any city or town therein shall be required to keep such right of way in repair, nor shall they be liable for injury sustained by persons traveling thereon; provided, that sufficient notice to warn the public is posted where such way enters upon or unites with an existing public way. SECTION 3. All expenses incurred by said county commissioners in connection with such right of way shall be borne by the county of Hampden, or by such cities and towns therein, and in such proportions, as said county commissioners may determine. SECTION 4. Said right of way shall not be discontinued or abandoned without authority therefor from the general court. SECTION 5. Nothing in this act shall be construed to limit the powers of the department of public health, or of any local board of health, under any general or special law.

House of Representatives, May 21, 1951.

Passed to be enacted, *Thomas P. O'Neill*, Speaker.

In Senate, May 22, 1951.

Passed to be enacted, *Richard J. Turkish* President.

May 25 1951.  
Approved,

*Paul A. Dever*  
Governor.

**THE COMMONWEALTH OF MASSACHUSETTS**

In the Year One Thousand Nine Hundred and Fifty-one

**AN ACT** PROVIDING FOR THE ESTABLISHMENT OF A RIGHT OF WAY FOR PUBLIC ACCESS TO LAKE LORRAINE IN THE CITY OF SPRINGFIELD

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows: SECTION 1. The county commissioners of Hampden county are hereby authorized and directed to lay out a right of way for public access to Lake Lorraine in the city of Springfield, in accordance with plans to be approved by the department of public works and showing the location and dimensions of such right of way. If it is necessary to acquire land for the purpose of laying out such right of way, said county commissioners shall at the time such right of way is laid out take such land by eminent domain under chapter seventy-nine of the General Laws. Any person sustaining damages in his property by the laying out of such right of way, or by specific repairs or improvements thereon, shall be entitled to recover the same under said chapter seventy-nine; provided, that the right to recover damages, if any, by reason of the laying out of such right of way, shall vest upon the recording of the order of taking by said county commissioners, and that no entry or possession for the purpose of constructing a public way on land so taken shall be required for the purpose of validating such taking or for the payment of damages by reason thereof. SECTION 2. The city of Springfield, from time to time, may make specific repairs on or improve such right of way to such extent as it may deem necessary, but neither the county of Hampden nor any city or town therein shall be required to keep such right of way in repair, nor shall they be liable for injury sustained by persons traveling thereon; provided, that sufficient notice to warn the public is posted where such way enters upon or unites with an existing public way. SECTION 3. All expenses incurred by said county commissioners in connection with such right of way shall be borne by the county of Hampden, or by such cities and towns therein, and in such proportions, as said county commissioners may determine. SECTION 4. Said right of way shall not be discontinued or abandoned without authority therefor from the general court. SECTION 5. Nothing in this act shall be construed to limit the powers of the department of public health, or of any local board of health under any general or special law.

House of Representatives, May 21, 1951.

Passed to be enacted, *Thomas P. O'Neill* Speaker.

In Senate, May 22, 1951.

Passed to be enacted, *Richard J. Furbush* President.

May 25, 1951.

Approved,

*Paul A. DeLoach*  
Governor.



AN ACT PROVIDING FOR THE ESTABLISHMENT OF A RIGHT OF WAY  
FOR PUBLIC ACCESS TO FIVE MILE POND IN THE CITY OF  
SPRINGFIELD.

Be it enacted by the Senate and House of Representatives in  
General Court assembled, and by the authority of the same, as follows:

SECTION 1. The county commissioners of Hampden county are hereby authorized and directed to lay out a right of way for public access to Five Mile Pond in the city of Springfield, in accordance with plans to be approved by the department of public works and showing the location and dimensions of such right of way. If it is necessary to acquire land for the purpose of laying out such right of way, said county commissioners shall at the time such right of way is laid out take such land by eminent domain under chapter seventy-nine of the General Laws. Any person sustaining damages in his property by the laying out of such right of way, or by specific repairs or improvements thereon, shall be entitled to recover the same under said chapter seventy-nine; provided, that the right to recover damages, if any, by reason of the laying out of such right of way, shall vest upon the recording of the order of taking by said county commissioners and that no entry or possession for the purpose of constructing a public way on land so taken shall be required for the purpose of validating such taking or for the payment of damages by reason thereof.

SECTION 2. The city of Springfield from time to time may make specific repairs on or improve such right of way to such extent as it may deem necessary, but neither the county of Hampden nor any city or town therein shall be required to keep such right of way in repair, nor shall it be liable for injury sustained by persons travelling thereon; provided, that sufficient notice to warn the public is posted where such way enters upon or unites with an existing public way.



SECTION 3. All expenses incurred by said county commissioners in connection with such right of way shall be borne by the county of Hampden, or by such cities and towns therein, and in such proportions as said county commissioners may determine.

SECTION 4. Said right of way shall not be discontinued or abandoned without authority therefor from the general court.

SECTION 5. Nothing in this act shall be construed to limit the powers of the department of public health, or any local board of health, under any general or special law.

THE COMMONWEALTH OF MASSACHUSETTE

DEPARTMENT OF PUBLIC WORKS

DIVISION OF WATERWAYS

100 Nashua Street, Boston

January 2, 1951.

Notice is hereby given that the Department of Public Works and a representative of the Attorney General, sitting as a joint board under authority of Chapter 453 of the Acts of 1923 (section 18-A of Chapter 91 of the General Laws) will give a public hearing at 100 Nashua Street, Boston, Fourth Floor, at 2:00 P.M. on Thursday, January 25, 1951, upon the petition of ten or more citizens of the Commonwealth for the establishment of a right of way for public access to three ponds, known as Five Mile Pond, Loon Pond and Lake Lorraine, in the city of Springfield.

For the Joint Board,

WILLIAM F. CALLAHAN  
Commissioner of Public Works.

Received in Hampden County Commissioners' Office  
on Friday, January 5, 1951 at 2:30 P.M.

January 24, 1951

William F. Callahan, Commissioner,  
Department of Public Works,  
100 Nashua Street,  
Boston, Mass.

Attention: JOINT BOARD

Re: Hearing for the establishment of a  
right of way for public access to  
three ponds, known as Five Mile Pond,  
Loon Pond and Lake Lorraine, in the  
City of Springfield. Date of Hearing,  
Thursday, January 25, 1951, at 2 P.M.,  
Fourth Floor, Public Works Building,  
100 Nashua Street, Boston, Mass.

Gentlemen:

The County Commissioners of Hampden County  
wish to be recorded as favoring the establishment of  
a right of way for public access to the three ponds,  
known as Five Mile Pond, Loon Pond and Lake Lorraine,  
in the City of Springfield.

Very truly yours,

COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

WFS/N

January 31, 1951

Stanley Stefanek, President,  
Lake Lorraine Civic Association,  
129 Homestead Avenue,  
Indian Orchard, Mass.

Dear Mr. Stefanek:

The County Commissioners are in receipt of your telegram of January 31, 1951 regarding right-of-way at Lake Lorraine.

We wish to assure you that no action will be taken by this Board until proper legislation is enacted.

Should such legislation be enacted, you will certainly have an opportunity to appear with your executive committee to present the views of the Lake Lorraine Civic Association.

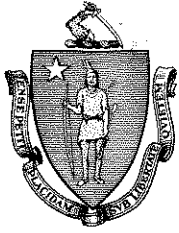
Very truly yours,

COUNTY COMMISSIONERS

By \_\_\_\_\_ Chairman.

WFS/N

Received February 23, 1951



*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*  
*100 Nashua Street, Boston 14*

February 20, 1951.

County Commissioners of Hampden County  
Court House  
Springfield, Mass.

Gentlemen:

I enclose herewith one report each relative to rights of way for public access to Five Mile Pond, Loon Pond and Lake Lorraine in the city of Springfield. These reports were made by the Joint Board constituted under the provisions of Section 18A of Chapter 91 of the General Laws.

Very truly yours,

*Rodolphe G. Besette*  
RODOLPHE G. BESSETTE  
Director, Division of Waterways.

Recd  
Feb. 23, 1951

The Joint Board, constituted under the provisions of Section 18A of Chapter 91 of the General Laws, submits the following report relative to a right of way for public access to Five Mile Pond situated in the City of Springfield.

Section 18A of Chapter 91 of the General Laws provides:

Upon petition of ten citizens of the commonwealth that in their opinion public necessity requires a right of way for public access to any great pond within the commonwealth, the department and the attorney general or a representative designated by him sitting jointly shall hold a public hearing and receive such evidence thereon as may be presented to them. The joint board may make such additional investigation as it deems desirable and if it appears to said board that such a right of way exists it shall present a petition to the land court for registration of the easement. If it appears that no right of way exists it shall submit a report, together with recommendations thereon, to the general court on or before January first of the following year. This section shall not apply to any body of water used as a source of water supply by the commonwealth or by any town or district, or water company, nor shall it affect the right of the commonwealth or any town or district or water company to the use and control of the waters of any such pond for the purposes of a water supply, nor shall it affect or diminish any existing right to the use of the water of any such pond for mercantile or manufacturing purposes.

Pursuant to this statute, a petition, suitably signed, was filed with the Department of Public Works on December 5, 1950 in regard to Five Mile Pond, Loon Pond and Lake Lorraine, in the City of Springfield.

The petition read as follows:

Department of Public Works

To Whom it may Concern:

The undersigned ten citizens of Massachusetts, respectfully represent that in their opinion, public necessity requires a right of way for public access to the shores of Five Mile Pond, Loon Pond and Lake Lorraine

great ponds in the City of Springfield, and request that a public hearing be held by the Joint Board under the provisions of section 18A of chapter 91 of the General Laws, and such further action taken by said Board as may be necessary under the provisions of said statute.

The Attorney General designated Assistant Attorney General James G. Wolff to represent him upon the Joint Board constituted under the provisions of said section 18A.

A public hearing duly advertised, of which notice was sent to the petitioners and all parties known to be interested, was held before the Joint Board on January 25, 1951, at which persons interested were given full opportunity to be heard and to present evidence and arguments. At this hearing, Assistant Attorney General James G. Wolff <sup>spt</sup> with Associate Commissioner Benjamin H. Grout of the Department of Public Works.

Five Mile Pond is the southerly portion of an original Great Pond which was divided in about the year 1833 into two sections by construction of the Western Railroad, the northerly portion being what is now known as Lake Lorraine.

Since Five Mile Pond is approximately 69 acres in extent and is not connected with Lake Lorraine, it was treated as an individual Great Pond which it is commonly considered to be.

Almost the entire southerly and westerly shore of Five Mile Pond is City land used for Park purposes, with that portion along the southerly shore, having direct access from Boston Road, which is a state highway, route No. 20, and runs about 400 feet southerly of the pond. That portion of the Park land lying along the westerly shore is not directly accessible from any public way but can be reached from the portion southerly of the pond, by a bridge over a small bay running off the main pond.

While this city-owned land provides access to the pond, it is used primarily for bathing and is subject to restrictions connected with park property and, therefore, cannot be considered as a public right of way to the pond for enjoying the privileges accorded the people of the commonwealth in great ponds.

Other than said park land, no evidence has been presented of an existing means of public access to this pond.

Upon consideration of the evidence presented at the public hearing and of the existing means of access to Five Mile Pond, the Board concludes that no suitable public right of way for access to the shore of the pond exists and that establishment of such a right of way is necessary and desirable.

Suggested at the public hearing were routes for public access from Boston Road and from Brandon Avenue, but the Board makes no recommendation in this respect as additional study is necessary for proper selection of a suitable location.

The Board recommends that the county commissioners of Hampden county be directed to lay out a public right of way to Five Mile Pond in such location as may be determined suitable and submits the attached bill for carrying out the recommendation.

Respectfully submitted,

DEPARTMENT OF PUBLIC WORKS

  
Commissioner

  
Associate Commissioner

  
Associate Commissioner

DEPARTMENT OF ATTORNEY GENERAL

  
Assistant Attorney General





*The Commonwealth of Massachusetts*  
*Office of the Secretary*

*State House, Boston 33*

*Edward J. Cronin*  
*Secretary of the Commonwealth*

May 29, 1951.

I Hereby Certify the Attached to be a  
True Photostatic Copy.



Witness the Great Seal of the Commonwealth

*Edward J. Cronin*

EDWARD J. CRONIN  
Secretary of the Commonwealth



*The Commonwealth of Massachusetts*  
*Office of the Secretary*

*State House, Boston 33*

*Edward J. Cronin*  
*Secretary of the Commonwealth*

May 29, 1951.

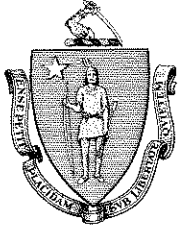
I Hereby Certify the Attached to be a  
True Photostatic Copy.



Witness the Great Seal of the Commonwealth

*Edward J. Cronin*

EDWARD J. CRONIN  
Secretary of the Commonwealth



*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*  
*100 Nashua Street, Boston 14*

August 27, 1951

County Commissioners  
Hampden County  
Court House  
Springfield, Massachusetts

Gentlemen:

Under the provisions of Chapter 24 of the Resolves of 1950 and extended by Chapter 28 of the Resolves of 1951 the Department is directed to submit annually to the General Court a list of Great Ponds within the Commonwealth and also indicate whether or not a public right of way exists to such ponds and if so its location.

Chapter 258 of the Acts of 1948 authorized and directed the County Commissioners of Hampden County to lay out in the Town of Brimfield a right of way for public access to Little Alum Pond in said town and an area for parking facilities contiguous to said right of way, in accordance with plans to be approved by the Department of Public Works and showing the location and dimensions of such right of way and parking area.

Chapter 341 of the Acts of 1951 authorized and directed the County Commissioners of Hampden County to lay out a right of way for public access to Five Mile Pond in the City of Springfield, in accordance with plans to be approved by the Department of Public Works and showing the location and dimensions of such right of way.

Chapter 342 of the Acts of 1951 authorized and directed the County Commissioners of Hampden County to lay out a right of way for public access to Lake Lorraine in the City of Springfield in accordance with plans to be approved by the Department of Public Works and showing the location and dimensions of such right of way.

Chapter 343 of the Acts of 1951 authorized and directed the County Commissioners of Hampden County to lay out a right of way for public access to Loon Pond in the City of Springfield in accordance with plans to be approved by the Department of Public Works and showing the location and dimensions of such right of way.

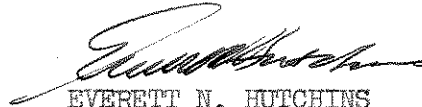
At your earliest convenience, the Department requests that you submit plans of the right of ways and parking area, signed by the County Commissioners, for approval so that the rights of way may be listed in subsequent reports.

County Commissioners of Hampden County

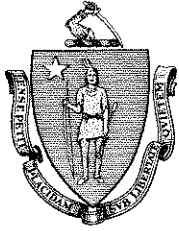
August 27, 1951

It is suggested that you submit the cloth tracing of the layout to the Department for approval which after being signed by the Commissioners of the Department will be returned to you.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Everett N. Hutchins", written in a cursive style.

EVERETT N. HUTCHINS  
District Waterways Engineer



*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*  
*100 Nashua Street, Boston 14*

August 29, 1951

Hampden County Commissioners  
Court House  
Springfield, Massachusetts

Gentlemen:

Chapter 102 of the Acts of 1925 authorized and directed the County Commissioners of Hampden to lay out a right of way in the Town of Blandford from Cove Road to Long Pond in said town for public access to said pond in accordance with plans therefor approved by this Department.

The Department has on file a plan showing the proposed right of way but said plan is not signed by this Department or by the County Commissioners.

The Department requests that a copy of the recorded taking plan of said right of way be forwarded to this office so that our files may be complete relative to this matter.

Thank you for your cooperation.

Very truly yours,

  
EVERETT N. HUTCHINS  
District Waterways Engineer

*Treasurer*  
Max Monical  
30 Foster Street  
Springfield, Mass.  
Tel. 2-5603

*President*  
George Friederich  
69 Lawler Street  
Holyoke, Mass.

*Secretary*  
E. C. Vasa  
164 Denver Street  
Springfield, Mass.  
Tel. Spfld. 6-6149

Ludlow Fish and Game  
Association, Inc.  
West Springfield Fish and  
Game Club  
Wilbraham Fish and Game  
Club, Inc.  
Springfield Sportsman's  
Club, Inc.  
Springfield Revolver Club  
Paper City Rod and Gun Club  
Pioneer Valley Rod and  
Gun Club



*Rec'd in  
Hampden  
County Comm's  
Office on Dec. 4, 1951*

Agawam Sportsmans Club, Inc.  
Chicopee Rod and Gun Club  
Fairview Fish and Game  
Association, Inc.  
Holyoke Fish and Game  
Assn. Inc.  
Western Massachusetts  
Beagle Club  
Westfield Beagle Club, Inc.  
The Springfield Salties  
Chester Rod and Gun Club  
Mawaga Sporting Club  
Chicopee Sportsman's Club

## The Council of Sportsmen's Clubs of Hampden County

COPY

To the Hampden County Commissioners.

164 Denver Street.  
Springfield 9 Mass.

The Undersigned ten citizens of Massachusetts respectful-ly represent that in their opinion public neccessity requires a right of way for public access to the shores of Haviland Pond and Red Bridge Pond great ponds in the Town of Ludlow and to the shores of Nine Mile Pond, a great pond in the Town of Wilbraham Mass., and request a public hearing of the Joint Board under the provisions of Section 18 A Chapter 91 of the General Laws and such further action taken by said Board as may be neccessary under the provisions of the statute.

E.C.Vasa Secretary.

*E.C.Vasa*

Harold P. Worthington	70 Elm Street	Agawam	Mass.
Dudley K. Bodurtha	41 Elm Street	Agawam	Mass.
LeRoy A. Fournier	118 Mill Street	Agawam	Mass.
Clayton Brown	25 Hampden Street	West Springfield	Mass.
John Kiendzior	6 Grant Street	West Springfield	Mass.
Robert J. Durkee	70 Grove Street	West Springfield	Mass.
Lester Sherry	521 Broadway	Chicopee Falls	Mass.
Florian H. Taft	136 Nelson St	West Springfield	Mass.
Adrian Blais	523 McKinstry Ave.	Chicopee	Mass.
Lucien A. Lambert	12 Grape Street	Chicopee	Mass.
Alfred S. Bell	235 Exchange Street	Chicopee	Mass.
Emile C. Dauphinais	123 Winsor Street	Ludlow	Mass.

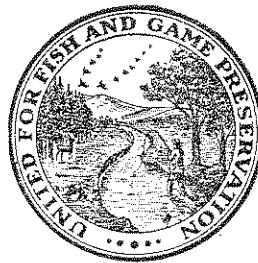
The Department of Public Works has one original and the Attorney General has another original - this copy was simply informative, as per conversation of Attorney William J. Foley and Mrs. E.C.Vasa on December 6, 1951, over the telephone.

*Treasurer*  
Max Monical  
30 Foster Street  
Springfield, Mass.  
Tel. 2-5603

*President*  
George Friederich  
69 Lawler Street  
Holyoke, Mass.

*Secretary*  
E. C. Vasa  
164 Denver Street  
Springfield, Mass.  
Tel. Spfld. 6-6149

Ludlow Fish and Game  
Association, Inc.  
West Springfield Fish and  
Game Club  
Wilbraham Fish and Game  
Club, Inc.  
Springfield Sportsman's  
Club, Inc.  
Springfield Revolver Club  
Paper City Rod and Gun Club  
Pioneer Valley Rod and  
Gun Club



Agawam Sportsmen's Club, Inc.  
Chicopee Rod and Gun Club  
Fairview Fish and Game  
Association, Inc.  
Holyoke Fish and Game  
Assn. Inc.  
Western Massachusetts  
Beagle Club  
Westfield Beagle Club, Inc.  
The Springfield Salties  
Chester Rod and Gun Club  
Mawaga Sporting Club  
Chicopee Sportsman's Club

## The Council of Sportsmen's Clubs of Hampden County

70 Elm St.  
Agawam, Mass.  
12/6/51

County Commissioners,  
37 Elm St.  
Springfield, Mass.

Gentlemen:-  
A committee from The Council of Sportsmen's  
Clubs would like to meet with you at your  
convenience to discuss progress on the rights of  
way to Five Mile Pond, Loon Pond, Lake Loraine,  
and Little Ahum Pond.

Yours truly  
Harold P. Worthington

December 19, 1951

Mr. Frank Beesley,  
Cobb, Beesley and Miles, Engineer,  
31 Elm Street,  
Springfield, Mass.

Dear Mr. Beesley:

Please contact me relative to some  
engineering work which is being proposed to be done  
by the County of Hampden. It does not concern  
Hampden.

Please call me at my office and I  
will be pleased to discuss this matter.

Very truly yours,

COUNSEL FOR THE HAMPDEN  
COUNTY COMMISSIONERS.

WJF/N

*Lake Lorraine, Five mile  
and Loon Ponds.*



December 19, 1951

Mr. Harold P. Worthington,  
70 Elm Street,  
Agawam, Mass.

Dear Mr. Worthington:

The County Commissioners are in receipt of your letter of December 6, 1951 in regard to the rights of way to Five Mile Pond, Loon Pond, Lake Lorraine and Little Alum Pond.

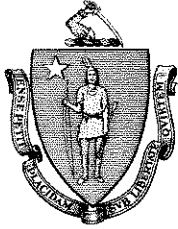
We are presently having a survey of Five Mile Pond, Loon Pond and Lake Lorraine, and we plan to have a public hearing on the location of the rights of way, and will be pleased to notify you well in advance of the date of the hearing.

Very truly yours,

COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

WFS/N



*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*  
*100 Nashua Street, Boston 14*

August 11, 1952

Hampden County Commissioners  
Court House  
Springfield, Massachusetts

Gentlemen:

Chapter 102 of the Acts of 1925 authorized and directed the County Commissioners of Hampden to lay out a right of way in the Town of Blandford from Cove Road to Long Pond in said town for public access to said pond in accordance with plans therefor approved by this Department.

The Department has on file a plan showing the proposed right of way but said plan is not signed by this Department or by the County Commissioners.

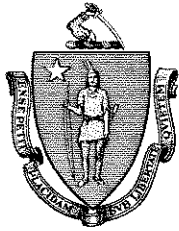
The Department requests that a copy of the recorded taking plan of said right of way be forwarded to this office so that our files may be complete relative to this matter.

Thank you for your cooperation.

Very truly yours,

A handwritten signature in cursive script, reading "Everett N. Hutchins".

EVERETT N. HUTCHINS  
District Waterways Engineer



# *The Commonwealth of Massachusetts*

## *Department of Public Works*

### *Division of Waterways*

*100 Nashua Street, Boston 14*

August 11, 1952

County Commissioners  
Hampden County  
Court House  
Springfield, Massachusetts

Gentlemen:

Under the provisions of Chapter 24 of the Resolves of 1950 and extended by Chapter 28 of the Resolves of 1951 the Department is directed to submit annually to the General Court a list of Great Ponds within the Commonwealth and also indicate whether or not a public right of way exists to such ponds and if so its location.

Chapter 258 of the Acts of 1948 authorized and directed the County Commissioners of Hampden County to lay out in the Town of Brimfield a right of way for public access to Little Alum Pond in said town and an area for parking facilities contiguous to said right of way, in accordance with plans to be approved by the Department of Public Works and showing the location and dimensions of such right of way and parking area.

Chapter 341 of the Acts of 1951 authorized and directed the County Commissioners of Hampden County to lay out a right of way for public access to Five Mile Pond in the City of Springfield, in accordance with plans to be approved by the Department of Public Works and showing the location and dimensions of such right of way.

Chapter 342 of the Acts of 1951 authorized and directed the County Commissioners of Hampden County to lay out a right of way for public access to Lake Lorraine in the City of Springfield in accordance with plans to be approved by the Department of Public Works and showing the location and dimensions of such right of way.

Chapter 343 of the Acts of 1951 authorized and directed the County Commissioners of Hampden County to lay out a right of way for public access to Loon Pond in the City of Springfield in accordance with plans to be approved by the Department of Public Works and showing the location and dimensions of such right of way.


At your earliest convenience, the Department requests that you submit plans of the right of ways and parking area, signed by the County Commissioners, for approval so that the rights of way may be listed in subsequent reports.

County Commissioners of Hampden County

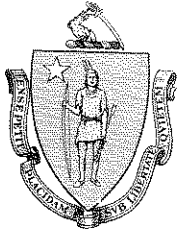
August 11, 1952

It is suggested that you submit the cloth tracing of the layout to the Department for approval which after being signed by the Commissioners of the Department will be returned to you.

Very truly yours,



EVERETT N. HUTCHINS  
District Waterways Engineer



*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*  
*100 Nashua Street, Boston 14*

November 10, 1952

County Commissioners

Hampden County

Springfield, Massachusetts

Gentlemen:

I enclose herewith reports made by the Joint Board constituted under the provisions of Section 18A of Chapter 91 of the General Laws relative to rights of way for public access to Chapin Pond in the Town of Ludlow and Nine Mile Pond in the Town of Wilbraham.

Very truly yours,

A handwritten signature in cursive script, reading "Rodolphe G. Besette".

RODOLPHE G. BESSETTE  
Director, Division of Waterways

*Treasurer*  
Max Monical  
30 Foster Street  
Springfield, Mass.  
Tel. 2-5603

*President*  
George Friederich  
69 Lawler Street  
Holyoke, Mass.  
Tel. 6813

*Secretary*  
E. C. Vasa  
164 Denver Street  
Springfield, Mass.  
Tel. Spfld. 6-6149

Ludlow Fish and Game  
Association, Inc.  
West Springfield Fish and  
Game Club  
Wilbraham Fish and Game  
Club, Inc.  
Springfield Sportsman's  
Club, Inc.  
Springfield Revolver Club  
Pioneer Valley Sportsmans Club  
Saltwater Sportsmens Club  
of Western Mass.  
Holyoke Beagle Club



Agawam Sportsmans Club, Inc.  
Chicopee Rod and Gun Club  
Fairview Fish and Game  
Association, Inc.  
Holyoke Fish and Game  
Assn. Inc.  
Western Massachusetts  
Beagle Club  
Westfield Beagle Club, Inc.  
The Springfield Salties  
Chester Rod and Gun Club  
Mawaga Sporting Club  
Chicopee Sportsman's Club  
Westfield Sportsmans Club

**The Council of Sportsmen's Clubs  
of Hampden County**

See  
reverse  
side.

*Wm Stapleton, Chair.  
Springfield, Mass.*

*Chicopee Falls  
5/4/53*

*Dear Sir:-*

*Owing to the many complaints received from delegates of various sporting clubs of the county, that some of their members are having a hard time gaining access, for fishing purposes, to many ponds which have been given "right of ways" through legislation, our committee would like to meet with the county commissioners to discuss the situation.*

*We feel more could be done to "open" those ponds in question, seeing as how some of them have had "right of ways" for about four years and are still not open.*

*If you prefer joining us at our next general meeting, may 28, at Hampden county Improvement Bldg, it would suit us fine.*

*Awaiting an answer or phone call. I remain,*

*P.S. An evening meeting  
would be appreciated.*

*Sincerely*

*Adrien C Blais, chair.  
623 McKinstry Ave  
Chicopee Falls, Mass.*

*Tel. Holyoke 39750*

*Treasurer*  
Max Monical  
30 Foster Street  
Springfield, Mass.  
Tel. 2-5603

*President*  
George Friederich  
69 Lawler Street  
Holyoke, Mass.  
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Springfield Revolver Club  
Pioneer Valley Sportsmans Club  
Saltwater Sportsmens Club  
of Western Mass.  
Holyoke Beagle Club

*June 20/53*  
*11:30*



Agawam Sportsmans Club, Inc.  
Chicopee Rod and Gun Club  
Fairview Fish and Game  
Association, Inc.  
Holyoke Fish and Game  
Assn. Inc.  
Western Massachusetts  
Beagle Club  
Westfield Beagle Club, Inc.  
The Springfield Salties  
Chester Rod and Gun Club  
Mawaga Sporting Club  
Chicopee Sportsman's Club  
Westfield Sportsmans Club

## The Council of Sportsmen's Clubs of Hampden County

Copy  
Mr. Walsh

County Commissioners Office  
Court House Building  
Springfield Mass.,

164 Denver St  
Springfield 9 Mass.  
June 8th. 1953

Dear Sir:

As Secretary of the above Council, I have been instructed to write to you requesting a meeting with our Committee on Rights of Way to Great Ponds.

The last meeting that was held by the Commission was advertised in the paper in such a manner that we were not aware that there was to be a meeting. Therefore we were unable to attend.

We now have to request that you and your Commissioners meet with our Committee on a Saturday, as soon as possible to get a few things settled and a few things started.

Please let me know what Saturday will be convenient and the date as it will be necessary to inform the Committee.

This Council is formed by many hundred working men, and it would be impossible for them to meet with you during the week. I am sure you will be glad to plan accordingly.

Sincerely,

Elizabeth C. Vasa

Secretary

*Elizabeth C. Vasa*

June 12, 1953

The Council of Sportsmen's Clubs  
of Hampden County,  
Elizabeth C. Vasa, Secretary,  
164 Denver Street,  
Springfield 9, Mass.

Gentlemen:

Agreeable to the request in your letter of  
June 8, 1953, the County Commissioners will be pleased  
to meet with representatives of your Council at the  
office of the Commissioners, 37 Elm Street, Springfield,  
Massachusetts, on Saturday, June 20, 1953, at 11:30  
o'clock in the forenoon.

Will you kindly confirm this appointment by  
letter at your early convenience.

Very truly yours,

COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

RPW/N

*Hooks for Howard Cleaners  
24 Walnut Street  
Springfield  
There is no telephone at this place.*



June 19, 1953

Western Union

Mrs. Elizabeth C. Vasa,  
Howard Cleaners,  
24 Walnut Street,  
Springfield, Mass.

Kindly telephone County Commissioners' Office 2-1161  
between two and three o'clock today.

Ralph P. Walsh,  
County Commissioner.

Dictated by  
RPW/N

August 14, 1953

Springfield Newspapers,  
Legal Advertising Dept.,  
16 Fort Street,  
Springfield, Mass.

Dear Sirs:-

Kindly publish the enclosed notices  
in re Lake Lorraine and Loon Pond in the Spring-  
field Union and Springfield Daily News on the fol-  
lowing dates;

August 27th and September 3rd, 1953

Charge to County of Hampden and send news-  
papers to County Commissioners' Office, Court House,  
37 Elm Street, Springfield, Mass.

Very truly yours,

COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman

RPW/S  
Encl.

September 2, 1953

Elizabeth C. Vasa, Secretary,  
The Council of Sportsmen's Clubs  
of Hampden County,  
164 Denver Street,  
Springfield 9, Massachusetts.

Dear Mrs. Vasa:

Please be advised that the Hampden  
County Commissioners will conduct a public hearing  
on rights of way to Loon Pond and Lake Lorraine at  
the County Commissioners' Office, 37 Elm Street,  
Springfield, Mass., on Wednesday, September 16, 1953,  
at 11 o'clock in the forenoon.

Members of the Sportsmen's Clubs of  
Hampden County are cordially invited to attend this  
meeting.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_ Chairman.

WRS/MS  
CC to  
George W. Friedrich  
Harold P. Worthington  
Adrien C. Blais

September 9, 1953

James J. Sullivan, Superintendent,  
Department of Streets and Engineering,  
Administration Building,  
Springfield, Massachusetts.

Dear Mr. Sullivan:

The County Commissioners would appreciate very much your attendance at the hearings to be held on Wednesday, September 16, 1953, at 11 o'clock in the forenoon at the Commissioners' Office regarding the public rights-of-way to Lake Lorraine and to Loon Pond.

It would also be appreciated if you would arrange to bring with you any maps which you believe might be useful in helping us to determine the best locations for the rights of way.

Will you kindly advise by telephone upon receipt of this letter whether or not you will be able to attend as requested.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_ Chairman.

RPW/N

COMMONWEALTH OF  
MASSACHUSETTS  
Hampden, ss  
County Commissioner's Meeting  
August 5, 1953  
WHEREAS the General Court by an Act known as Chapter 343 of the year 1951 did provide for the establishment of a right of way for public access to Loon Pond in the City of Springfield, and did further authorize and direct the County Commissioners of Hampden County to lay out said right of way; the said County Commissioners hereby give notice that they will meet for the purpose of viewing the premises and hearing all parties interested, at the office of the County Commissioners at 37 Elm Street, Springfield on the 16th day of September next at 11:15 A. M.; and it is ordered by the Commissioners that a copy of this notice be served by the Sheriff of said County, or his Deputy, upon the Clerk of the City of Springfield in said County, fifteen days at least before the said 16th day of September and all other persons and Corporations interested therein be notified, by publishing a copy of this notice and this order thereon, twice in the Springfield Daily News, and Holyoke Transcript-Telegram, public newspapers printed in said county, the last publication to be seven days at least before the time of said view and hearing, and that copies of this notice, or abstracts containing the substance thereof and this order, be posted by said Sheriff or Deputy, in two public places in the City of Springfield seven days before said 16th day of September, 1953.  
RALPH P. WALSH,  
WILLIAM F. STAPLETON,  
County Commissioners of the  
County of Hampden.

Aug-27-Sept-3

COMMONWEALTH OF  
MASSACHUSETTS  
Hampden, ss  
County Commissioner's Meeting  
August 5, 1953  
WHEREAS the General Court by an Act known as Chapter 342 of the year 1951, did provide for the establishment of a right of way for public access to Lake Lorraine in the City of Springfield, and did further authorize and direct the County Commissioners of Hampden County to lay out said right of way; the said County Commissioners hereby give notice that they will meet for the purpose of viewing the premises and hearing all parties interested, at the office of the County Commissioners at 37 Elm Street, Springfield, on the 16th day of September next at 11:00 A. M., and it is ordered by the Commissioners that a copy of this notice be served by the Sheriff of said County, or his Deputy, upon the Clerk of the City of Springfield in said County, fifteen days at least before the said 16th day of September and that all other persons and corporations interested therein be notified, by publishing a copy of this notice and this order thereon, twice in the Springfield Daily News, and Holyoke Transcript-Telegram, public newspapers printed in said county, the last publication to be seven days at least before the time of said view and hearing, and that copies of this notice, or abstracts containing the substance thereof and this order, be posted by said Sheriff or Deputy, in two public places in the City of Springfield seven days before said 16th day of September, 1953.  
RALPH P. WALSH,  
WILLIAM F. STAPLETON,  
County Commissioners of the  
County of Hampden.

Aug-27-Sept-3

COMMONWEALTH OF  
MASSACHUSETTS  
Hampden, ss  
County Commissioner's Meeting  
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WHEREAS the General Court by an Act known as Chapter 342 of the year 1951, did provide for the establishment of a right of way for public access to Lake Lorraine in the City of Springfield, and did further authorize and direct the County Commissioners of Hampden County to lay out said right of way; the said County Commissioners hereby give notice that they will meet for the purpose of viewing the premises and hearing all parties interested, at the office of the County Commissioners at 37 Elm Street, Springfield, on the 16th day of September next at 11:00 A. M., and it is ordered by the Commissioners that a copy of this notice be served by the Sheriff of said County, or his Deputy, upon the Clerk of the City of Springfield in said County, fifteen days at least before the said 16th day of September and that all other persons and corporations interested herein be notified, by publishing a copy of this notice and this order thereon, twice in the Springfield Daily News, and Holyoke Transcript-Telegram, public newspapers printed in said county, the last publication to be seven days at least before the time of said view and hearing, and that copies of this notice, or abstracts containing the substance thereof and this order, be posted by said Sheriff or Deputy, in two public places in the City of Springfield seven days before said 16th day of September, 1953.  
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Aug-27-Sept-3

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RALPH P. WALSH,  
WILLIAM F. STAPLETON,  
County Commissioners of the  
County of Hampden.

Aug-27-Sept-3

ADVERTISING

NOTICE OF HEARING

in re: Loon Pond  
and  
Lake Lorraine

1953

AUG. 27, 1953 Page 2 - Holyoke Trans-Telegram

AUG. 27, 1953 Page 2 - Holyoke Trans-Telegram

AUG. 27, 1953 Page 2 - Holyoke Trans-Telegram

AUG. 27, 1953 Page 2 - Holyoke Trans-Telegram

sea they did not object to the charge of 35 cents for adults and 20 cents for children for swimming privileges.

#### Kids Can't Swim

However, the net result of Socha's, Oster's, Crivelli's and others' actions of yesterday and last night will deprive all children of swimming in the lake. Some parents pointed out that the children will cross the Boston & Albany Railroad tracks to swim in Five Mile Pond. In fact, some of the children have already done this, being willing to chance a passing train in order to go swimming.

Socha's property lies at the foot of Ross and Michigan Sts. and runs for about 100 feet before it touches Lake Drive which Crivelli claims he owns. The fence or "parallel" is erected in the middle of Socha's property. Association members said Socha had allowed people to cross his property for the past 12 years. One man who lives near the Socha property said the road has been opened all the time he lived there, more than 25 years. If this were so, Socha's property could be claimed as a public way, some said.

Crivelli said that erection of the fence blocked entrance for fire apparatus and ambulances to the whole south of the lake. Another road swings to the west of the lake but has deep ruts and is hardly passable.

#### Signs Come Down

Association members were riled because Crivelli had fenced in his beach (some said the fence extended several feet into the water) and also prohibited people from swimming in other parts of the lake since he claims he owns all the land from Lake Drive to the water's edge. Crivelli had posted "No Swimming" and "No Parking" signs along the lakeside of Lake Drive, but these were promptly pulled down yesterday.

Association members said they were awaiting a ruling from Associate City Solicitor John T. Hanley, whether or not Crivelli was violating zoning ordinances by charging admission to the beach. That part of the beach where the refreshment stand is located is zoned for business, but the rest of the lake shore is zoned for Residence B, they said.

Contacted at his home last night Hanley said that he has been tied up with contracts for the new Municipal Hospital all week and has not had time to complete his study of the alleged zoning violations. He said he would make a ruling in the matter as soon as possible.

#### Plowed Up Streets

The association also charged that Crivelli had plowed up and repaved two city streets—Blackmere Ct. and Barnard Cir.—to use them as a private parking lot for his beach.

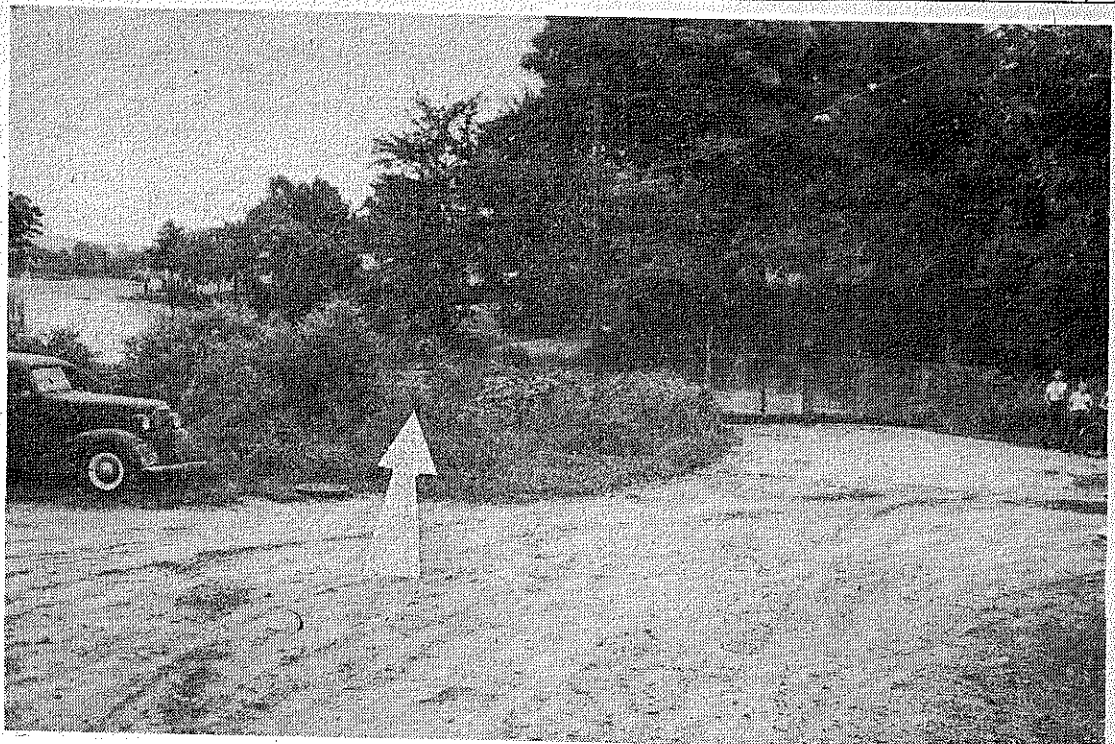
Crivelli said he bought the land around the lake from Mrs. Grace Jorocan and the beach from Mr. and Mrs. Bryson Gilmore, now of Florida. The association claims that when the Gilmores owned the beach there was no wire fence around it and the only charge made was for food and refreshment bought at the small store on the beach.

Just about the time some 25 association members and Crivelli's cohorts were hurling jibes at each other, a rainbow—usually a sign of peace—spread across the lake. It's beauty failed to make an impression on the embattled persons.

Association officers who appeared at the scene last evening included Harry Marceau, former alderman and presently a member of the Board of Public Works, president; Kenneth Newell, vice-president; Miss Amy Perry, secretary, and Stanley Stefanik, treasurer. The association numbers about 300.

#### SEA CAPTAIN DIES

South Kingstown, R. I., July 5 (AP)—



Page Blvd. join. He was supported by Mrs. Katherine Hennessey for the Widow and Widowers Club, who stated that other routes might cause traffic congestion and make it impossible for the fire department to have access to the lake in case of drownings or fire.

Harry J. Marceau, speaking for the Lake Lorraine Civic Association stated that their first choice would be Mohican St. with alternatives of Michigan Blvd. or Lorrimer St. When it was pointed out by Mr. Grout that the Page Blvd. route would not require taking as much land, he stated that the county commissioners had promised his group that they could have the right of way where they wanted it.

Speaking in favor of establishing the rights of way to the three ponds were Rep. John Thompson, D-Ludlow, Emile C. Dauphinaux of the State Council of Sportsmen; Arthur J. Topham of the Hampden County Council of Sportsmens Clubs; Harold P. Worthington, president of the Isaac Walton League chapter of Hampden County and as a member of the conservation committee of the Pioneer Valley Association, and James Sullivan of the Springfield Public Works Department.

Recorded in favor of the three rights of way were Reps. John Curley, D-Springfield; John Pierce Lynch, D-Springfield; Sen. Maurice A. Donahue, D-Holyoke; and Rep. Ernest DeRoy, D-Chicopee. Present and recorded in favor were Henry J. Pratt, Jr., Louis J. Sacenti, Juliette and Riene Morrisette, Mr. and Mrs. Peter Civelli, and Mrs. D. R. Fall.

Mrs  
Co'  
re  
la  
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mediately involved geographically. Some of the signers of a petition reside on Berkshire Ave., he noted, a considerable distance away.

The Crivelli establishment, Atty. Wright said, is at the easterly end of Lake Drive and does not interfere with other sections. It terminates at the railroad embankment. The section, by virtue of the railroad embankment, industrial development on another shore and several business properties not zoned as non-conforming, was not exclusively residential.

He referred to a Supreme Court decision that unless the Board of Ap-

peals confines of the briefs to be submitted, Judge Giles took the cases under study.

CONFIDENTIAL

Atty. Charles V. Ayer is appearing for the appellants and Attys. Earl H. Wright and Edward Hutchings are joined in representing the Crivelli's. Atty. Donald A. Clancy, as associate city solicitor, is appearing for the

members of the Springfield Board of Appeals.

Judge Giles and counsel took a view of the area involved in the court controversy yesterday afternoon.

In the bills of complaint and petitions, there are references to the numerous court actions down through the years including parts of Massachusetts Supreme Court decisions involving the various contests over the allowance of commercial ventures at the lake.



pon, being the time the same  
 attached on mesne process in  
 the following described real

**Ponds**  
 in Springfield, Hampden  
 Massachusetts, described as

No. 398 and 399 recorded in  
 len County Registry of Deeds  
 04, Page 601.  
 e the same premises conveyed  
 el F. Dearborn and Viola E. M.  
 by warranty dated

2, 1948 and recorded in said  
 en County, Registry of Deeds  
 1951, Page 475.  
 on Saturday, the 16th day of  
 D. 1953, at 10 o'clock in the  
 n, on the Superior Court  
 Steps, Elm Street side, Spring-  
 field, Mass., I shall  
 re sale at Public Auction, to  
 chest bidder, said right, title  
 vest in and to the above de-  
 property, to satisfy said Ex-  
 and all expenses and charges

**JOSEPH ASCHER**  
 Deputy Sheriff & Auctioneer  
 N. J. Bailey, Atty.  
 (April 11-18-28)

**COMMONWEALTH OF  
 MASSACHUSETTS**  
**HAMPDEN ss PROBATE COURT**  
 In person and in the  
 of **MYRTLE B. HILL** late of  
 Springfield in said County, deceased.

A petition has been presented to  
 saw Court for probate of a  
 instrument purporting to be the last  
 will of said deceased by **HORACE B.  
 HILL**, of said Springfield and pray-  
 ing that he be appointed executor  
 thereof without giving a surety on  
 his bond.

If you desire to object thereto, you  
 or your attorney should file a writ-  
 ten appearance in said Court at  
 Springfield before ten o'clock in the  
 forenoon on the twenty-eighth day  
 of April 1953, the return day of this  
 citation.

Witness, **THOMAS H. STAPLETON**,  
 Esquire, First Judge of said Court,  
 this thirtieth day of March in the  
 year of our Lord one thousand nine  
 hundred fifty-three.

**JOHN J. LYONS, Register.**  
 (April 4-11-18)

**COMMONWEALTH OF  
 MASSACHUSETTS**  
**HAMPDEN ss PROBATE COURT**  
 To **ADELBERT BRUCE HAMIL-  
 TON** of parts unknown.

A libel has been presented to said  
 Court by your wife **NAOMI MADEYR  
 LASTER HAMILTON**, of Springfield,  
 in the County of Hampden praying  
 that a divorce from the bond of  
 matrimony between herself and you  
 be decreed for the cause of cruel  
 and abusive treatment and praying  
 for custody of minor children.

If you desire to object thereto, you  
 or your attorney should file a writ-  
 ten appearance in said Court within  
 twenty-one days from the first day  
 of September 1953, the return day  
 of this citation.

Witness, **THOMAS H. STAPLETON**,  
 Esquire, First Judge of said Court,  
 this second day of April in the year  
 of our Lord one thousand nine hun-  
 dred fifty-three.

**JOHN J. LYONS, Register**  
 (April 11-18-25)

**SYBIL H. HOLMES, Recorder.**  
 Atty. Louis H. Gordon  
 115 State Street  
 Springfield, Mass.  
 (April 11-18-25)

**COMMONWEALTH OF  
 MASSACHUSETTS**  
**HAMPDEN ss PROBATE COURT**

To all persons interested in the  
 estate of **MICHAEL J. KELLEY**  
 late of Springfield, in the State of  
 Montana, deceased.

A petition has been presented to  
 said Court, praying that **MARGUE-  
 RITE H. HAMILTON**, in the State of  
 New York, or  
 some other suitable person be ap-  
 pointed administratrix of said estate.  
 If you desire to object thereto, you  
 or your attorney should file a  
 written appearance in said Court at  
 Springfield before ten o'clock in the  
 forenoon on the twenty-first day of  
 April, 1953, the return day of this  
 citation.

Witness, **THOMAS H. STAPLETON**,  
 Esquire, First Judge of said Court,  
 this twenty-fourth day of March in  
 the year of our Lord one thousand  
 nine hundred fifty-three.

**JOHN J. LYONS, Register.**  
 (March 48, April 4-11)

**COMMONWEALTH OF  
 MASSACHUSETTS**  
**HAMPDEN ss**  
 County Commissioners' Meeting

March 25, 1953  
**WHEREAS** the General Court by an  
 Act known as Chapter 341 of the  
 year 1931 did confer upon the es-  
 tablishment of a right of way for public  
 access to Five Mile Pond in the  
 City of Springfield, and did further  
 authorize said County Commissioners  
 of Hampden County  
 to lay out said right of way; the  
 said County Commissioners hereby  
 give notice that they will meet for  
 the purpose of viewing the premises  
 and hearing all parties interested,  
 at the office of the County Commis-  
 sioners at 27 Elm Street, Springfield  
 on the 22nd day of April next at  
 2:30 P.M.; and it is ordered by the  
 Commissioners that a copy of this  
 notice be delivered by the Sheriff of  
 said County, or his Deputy, upon  
 the Clerk of the City of Springfield  
 on said County fifteen days at least  
 before the said 22nd day of April and  
 that all other persons and corpora-  
 tions interested therein be notified,  
 and that a copy of this notice  
 and this order hereon, twice in the  
 Springfield Daily News, Springfield  
 Free Press, Holyoke Transcript-  
 Telegram and LaJustice, public  
 newspapers printed in said county,  
 the last publication to be seven days  
 at least before the time of said view  
 and hearing, and that copies of this  
 notice, or abstracts containing the  
 substance thereof and this order, be  
 posted by said Sheriff or Deputy, in  
 two public places in the City of  
 Springfield seven days before said  
 22nd day of April 1953.

**RALPH P. WALSH**  
**WILLIAM H. STAPLETON**  
 County Commissioners of the  
 County of Hampden  
 (April 4-11)

**THE FREE PRESS BY MAIL**  
**\$2 PER YEAR**

To be considered bids must be re-  
 ceived at said 124 Putnam Circle be-  
 fore 2 o'clock P. M. E. S. T. on April  
 16, 1953 at which time and place  
 such bids will be opened and the  
 amounts thereof announced. Envel-  
 opes containing bids must be plain-  
 ly marked with date and hour of  
 opening, and bids received after the  
 hour named will not be considered.

Each bid must be accompanied by  
 a certified check for 3% of the  
 amount thereof. Such check of the  
 successful bidder will be returned  
 upon execution of contract, others  
 when the award is made. Failure of  
 the successful bidder to enter into the  
 contract will forfeit his check. All  
 checks to be made payable to the  
 order of the Springfield Housing Au-  
 thority. Details of contract require-  
 ments and specifications may be ob-  
 tained at 124 Putnam Circle, Springfield.

The Springfield Housing Authority  
 reserves the right to reject any or  
 all bids and to waive any informal-  
 ities in bidding if it be in the pub-  
 lic interest. The successful bidder will  
 be required to furnish a perform-  
 ance and payment bond with satis-  
 factory corporate surety in the  
 amount of 50% of his bid and atten-  
 tion is expressly called to provisions  
 of his bid form in regard to rates  
 of wages, workmen's compensation,  
 insurance and such other provisions  
 of like nature as may appear therein.

**SPRINGFIELD HOUSING  
 AUTHORITY**  
**P. W. Harrigan**  
 Executive Director  
 (April 4-11)

Witness, **JOHN E. FENTON**,  
 quire, Judge of said Court this y  
 teen day of March 1953.

**SYBIL H. HOLMES, Record**  
 A true copy attest.  
 (Mar. 28-Apr. 4-11)

**COMMONWEALTH OF  
 MASSACHUSETTS**  
**HAMPDEN ss PROBATE CO**

To all persons interested in  
 trust estate under the will of  
**LIAM H. DEXTER** late of Sp  
 field in said County deceased,  
 the benefit of **ELIZABETH B.  
 DEXTER** and others, under the l  
 graph of the first codicil to  
 will.

The trustee of said estate has  
 sent to said Court for allow  
 its twenty-second, twenty-third  
 twenty-fourth accounts.

If you desire to object thereto  
 or your attorney should file a v  
 ten appearance in said Cou  
 Springfield before ten o'clock in  
 forenoon on the twenty-eighth  
 of April 1953, the return day of  
 citation.

Witness, **THOMAS H. STAPLE**  
 Esquire, First Judge of said C  
 this second day of April in the  
 of our Lord one thousand nine  
 dred fifty-three.

**JOHN J. LYONS, Regist**  
 (April 11-13-25)

My wife says if I don't c  
 golf, she'll leave me.  
 I say—hard luck!  
 Y—yes, I'll miss her.

## ATTORNEYS TAKE NOTICE

★

### INVESTMENTS

State St.—Large Apt. Block	Inc. \$12,000
Spring St.—32 Apt. Block	Inc. 18,000
Pearl St. off—8 Apt. Brick Block	Specie
Main St. 4 Stores & 8 Apts.	Inc. 12,000
Large Rooming House	Inc. 8,000
Maple St. Home & Office	Price 30,000
Gas Station Leased	Investmen
Stores & Gas Station	Very Good Incom
South Main—Large Income	Inquiri

**Spfld. Real Estate Exchange 3-482**

Realtor—Hector Lucier & Staff

March 24, 1954

Department of Public Works,  
Division of Waterways,  
100 Nashua Street,  
Boston 14, Mass.

Gentlemen:

There is transmitted herewith the layout for public access to Lake Lorraine, Springfield, Mass., as provided for in Chapter 342 of the Acts of 1951. The proposed layout is in red. This layout is being submitted to your Division for its approval prior to the County Commissioners taking land by eminent domain under Chapter 79 of the General Laws.

If approval of the layout is given, will you please notify the Commissioners of Hampden County of the same.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

WJF/N

March 24, 1954

Department of Public Works,  
Division of Waterways,  
100 Nashua Street,  
Boston 14, Mass.

Gentlemen:

There is transmitted herewith the layout for public access to Loon Pond, Springfield, Mass., as provided for in Chapter 343 of the Acts of 1951. The proposed layout is in red. This layout is being submitted to your Division for its approval prior to the County Commissioners taking land by eminent domain under Chapter 79 of the General Laws.

If approval of the layout is given, will you please notify the Commissioners of Hampden County of the same.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_ Chairman.

WJF7N

March 24, 1954

Department of Public Works,  
Division of Waterways,  
100 Nashua Street,  
Boston 14, Mass.

Gentlemen:

There is transmitted herewith the layout for public access to Five Mile Pond, Springfield, Mass., as provided for in Chapter 341 of the Acts of 1951. The proposed layout is in red. This layout is being submitted to your Division for its approval prior to the County Commissioners taking land by eminent domain under Chapter 79 of the General Laws.

If approval of the layout is given, will you please notify the Commissioners of Hampden County of the same.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

WJF/N

March 24, 1954

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By \_\_\_\_\_  
Chairman.

WJF/N

March 24, 1954

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Division of Waterways,  
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If approval of the layout is given, will you please notify the Commissioners of Hampden County of the same.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

WJF/N

March 24, 1954

Department of Public Works,  
Division of Waterways,  
100 Nashua Street,  
Boston 14, Mass.

Gentlemen:

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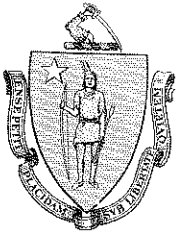
If approval of the layout is given, will you please notify the Commissioners of Hampden County of the same.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

WJF/N



# *The Commonwealth of Massachusetts*

## *Department of Public Works*

### *Division of Waterways*

*100 Nashua Street, Boston 14* March 26, 1954

Mr. Thomas F. Sullivan,  
Chairman, Hampden County Comrs.,  
Springfield, Mass.

Dear Sir:

Receipt is hereby acknowledged of the letters dated March 24th relating to rights of way to Five Mile Pond, Lake Lorraine and Loon Pond, Springfield, together with plans showing the proposed layouts, in accordance with Chapters 341, 342 and 343 respectively, of the Acts of 1951.


The locations proposed appear to be satisfactory and there seems to be no reason why they will not be approved by the Board, however, it is customary for the Board to affix their signatures to the tracings in approval, but only after the County Commissioners have affixed their signatures.

Therefore, the tracings should be forwarded to this office at your convenience after first being signed by the County Commissioners. The tracing will of course be returned after this Board has taken action and prints have been made for our files.

Enclosed is a blueprint of a plan which has been approved, showing the manner in which place may be provided for signatures and a note regarding approval. Strict adherence to this arrangement is of course not necessary.

The prints you sent in have been placed in our files and if you so desire, they may be returned to you.

Very truly yours,

  
RODOLPHE G. BESSETTE  
Director Division of Waterways



March 31, 1954

Rodolphe G. Bessette, Director,  
Division of Waterways,  
Department of Public Works,  
100 Nashua Street,  
Boston 14, Mass.

Dear Sir:

As suggested in your letter of March 26, 1954, the County Commissioners have this date approved the tracing of plans relating to rights of way to Five Mile Pond, Lake Lorraine and Loon Pond, in Springfield, and they are enclosed herewith together with plan of Alum Pond in the Town of Sturbridge, (January 1952).

Please return to us our blueprints with original tracings. Your early approval of these plans will be greatly appreciated.

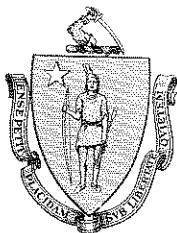
Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Chairman.

WFS/N  
encls.

Rec.  
4/13/54



*The Commonwealth of Massachusetts*  
*Department of Public Works*  
*Division of Waterways*

*100 Nashua Street, Boston 14* April 9, 1954

Mr. Thomas F. Sullivan,  
Chairman, Hampden County Comrs.,  
Springfield, Massachusetts.

Dear Sir:

There is forwarded under separate cover the three tracings showing the rights of way to Five Mile Pond, Lake Lorraine and Loon Pond, in the city of Springfield, which have been signed by the Commissioners, April 5, 1954.

Very truly yours,

*Rodolphe G. Besette*  
RODOLPHE G. BESSETTE  
Director Division of Waterways.

COMMONWEALTH OF MASSACHUSETTS

Hampden, ss: County Commissioners' Meeting June 16, 1954

Acting under the provisions of Chapter 342 of the Acts of 1951, the County Commissioners of Hampden County now lay out a right of way for public access to Lake Lorraine in the City of Springfield in accordance with a plan approved April 5, 1954 by the State Department of Public Works.

Lake Lorraine 1954 Layout in Springfield

The layout is located at Lorimer Street, Springfield, Massachusetts, beginning at a point in the Northerly Street Line of Lorimer Street at the Southwest corner of land of Charles E. Hough, thence running S.  $55^{\circ} 43'$  and  $50''$  E. along said northerly street line of said Lorimer Street, a distance of 214.74 feet, thence running northerly along the westerly street line of said Lake Drive by a curve to the left having a radius of 440.00 feet, an arc distance of 51.80 feet to a point, thence running S.  $55^{\circ} 43' 50''$  to Lake Lorraine, a distance of 54.60 feet more or less, thence southerly 101 feet more or less, thence westerly a distance of 267.11 feet to the northwest corner of land of Carroll S. and Bernice Johnston thence running north  $34^{\circ} 16' 10''$  east 50 feet to the place of beginning.

AND the following described parcels of land are taken in fee for the purposes of said right of way for public access by right of eminent domain under Chapter 79 of the General Laws and all acts in amendment thereof and in addition thereto. All land taken is located in the City of Springfield in said County.

PARCEL NO. 1 A parcel of land supposed to be owned by Charles E. Hough located on the northerly side of Lorimer Street bounded and described as follows:

Beginning at a point in the northerly street line of Lorimer Street at the southwest corner of land of Charles E. Hough; thence running S 55° 43' 50" E along the northerly street line of said Lorimer Street a distance of 90.00 feet to a point at land of Blanche Edna Steben; thence running S 34° 16' 10" W. a distance of 25.00 feet to a point in the center line of said Lorimer Street; thence running N. 55° 43' 50" W along the center line of said Lorimer Street a distance of 90.00 feet to a point; thence running N. 34° 16' 10"E a distance of 25.00 feet to the point of beginning.

PARCEL NO. 2. A parcel of land supposed to be owned by Carrol S. and Bernice Johnston located on the southerly side of Lorimer Street bounded and described as follows:

Beginning at a point in the southerly street line of Lorimer Street at the northwest corner of land of Carrol S. and Bernice Johnston; thence running N 34° 16' 10" E. a distance of 25.00 feet to a point in the center line of said Lorimer Street; thence running S 55° 43' 50" E along the center line of said Lorimer Street a distance of 67.50 feet to a point; thence running S 34° 16' 10" W a distance of 25.00 feet to the southerly street line of said Lorimer Street at land of Ralph W. and Veronica LaFleur; thence running N 55° 43' 50" W along the said southerly street line of Lorimer Street a distance of 67.50 feet to the point of beginning.

PARCEL NO.3. A parcel of land supposed to be owned by Ralph W. and Veronica LaFleur located on the southerly side of Lorimer Street bounded and described as follows:

Beginning at a point in southerly street line of Lorimer Street at the northwest corner of land of Ralph W. and Veronica LaFleur; thence running N 34° 16' 10" E a distance of 25.00 feet to a point in the center line of said Lorimer Street; thence running S 55° 43' 50" E along the center line of said Lorimer Street a distance of 47.50 feet to a point; thence running S 34° 16' 10" W a distance of 25.00 feet to the southerly street line of said Lorimer Street at land of John Joseph and Rose R. Buckley; thence running N 55° 43' 50" W along the southerly street line of Lorimer Street a distance of 47.50 feet to the point of beginning.

PARCEL NO. 4. A parcel of land supposed to be owned by John Joseph and Rose R. Buckley located on the southerly side of Lorimer Street bounded and described as follows:

Beginning at a point in the southerly street line of Lorimer Street at the northwest corner of land of John Joseph and Rose R. Buckley; thence running N 34° 16' 10" E a distance of 25.00 feet to a point in the center of said Lorimer Street, thence running S 55° 43' 50" E along the center line of said Lorimer Street a distance of 117.29 feet to the center line of Lake Drive; thence running south-westerly along the center line of said Lake Drive by a curve to the right having a radius of 453.00 feet an arc distance of 25.17 feet; thence running N 55° 43' 50" W across said Lake Drive and the southerly street line of Lormier Street a distance of 120.16 feet to land of Ralph W. & Veronica LaFleur at the point of beginning.

PARCEL NO. 5. A parcel of land supposed to be owned by Blanche Edna Stueben located on the northerly side of Lorimer Street bounded and described as follows:

Beginning at a point in the northerly street line of Lorimer Street at southwesterly corner of land of Blanche Edna Stueben; thence running S 55° 43' 50" E along the northerly street line of said Lorimer Street a distance of 124.74 feet to the westerly street line of Lake Drive; thence running northerly along the westerly street line of said Lake Drive by a curve to the left having a radius of 440.00 feet an arc distance of 51.80 feet to a point; thence running S 55° 43' 50" E a distance of 13.68 feet to the center line of said Lake Drive; thence running southwesterly along the center line of said Lake Drive by a curve to the right having a radius of 453.00 feet an arc distance of 77.06 feet to a point; thence running N 55° 43' 50" W across said Lake Drive and the center line of said Lorimer Street a distance of 142.32 feet to a point; thence running N 34° 16' 10" E a distance of 25.00 feet to the northerly street line of said Lorimer Street and land of Charles E. Hough at the place of beginning.

PARCEL NO. 6. A parcel of land supposed to be owned by Peter J. Crivelli located on the easterly side of Lake Drive bounded and described as follows:

Beginning at a point in the southerly street line of Lorimer Street extended to the Westerly shore of Lake Lorraine; thence running N 55° 43' 50" W along the southerly street line of said Lorimer Street extended a distance of 31.95 feet more or less to the center line of Lake Drive; thence running northerly along the center line of said Lake Drive by a curve to the left having a radius of 453.00 feet an arc distance of 102.23 to a point; thence running S 55° 43' 50" E a distance of 41.32 feet more or less to the westerly shore of Lake Lorraine; thence running southwesterly along the westerly shore of said Lake Lorraine a distance of 101 feet more or less to the point of beginning.

The layout and land takings above described are indicated on plan prepared for the County Commissioners of Hampden County dated November 1953 on file in the Hampden County Registry of Deeds and Clerk of Courts office also in the City Clerk's Office and marked as follows:

Springfield, Mass.  
Department of Streets and Engineering  
Plan of Land to be Acquired  
For Public Access to  
Lake Lorraine  
In accordance with Chapter 342 of the Acts of 1951  
- Prepared for -  
HAMPDEN COUNTY COMMISSIONERS

Scale 1" = 20 feet

November 1953

AND the owners of the land over which said right of way is laid out are allowed until the first day of October next to remove therefrom their buildings, wood, timber or trees. The Commissioners having heard the proprietors of said land, by themselves, or their agents, so far as they have expressed the desire to be heard on the subject of damages, by them sustained by reason of laying out said right of way, have estimated the same as follows, to wit:

TO:- Charles E. Hough .....	\$1.00
Carrol S. and Bernice Johnston ....	1.00
Ralph W. and Veronica LaFleur .....	1.00
John Joseph and Rose R. Buckley ...	1.00
Blanche Edna Stueben .....	1.00
Peter J. Crivelli .....	1.00

Payment to be made to the above described parties damaged to the amount that may be found to be their due, by the City of Springfield, when entry is actually made upon the premises for purposes of a right of way.

Any work required to be done in the carrying out of said order, to be done and performed by the City of Springfield.

All land, grade, drainage and other legal damages shall be paid by the City of Springfield.

<u>Thomas F. Sullivan</u>	)	County Commissioner. of the County of Hampden
<u>William F. Stapleton</u>	)	
<u>Ralph P. Walsh</u>	)	

Hampden, ss: County Commissioners' Meeting June 16, 1954

The foregoing report is filed and accepted, and there-  
upon it is ordered that the said right of way be a right of  
way for public access forever.

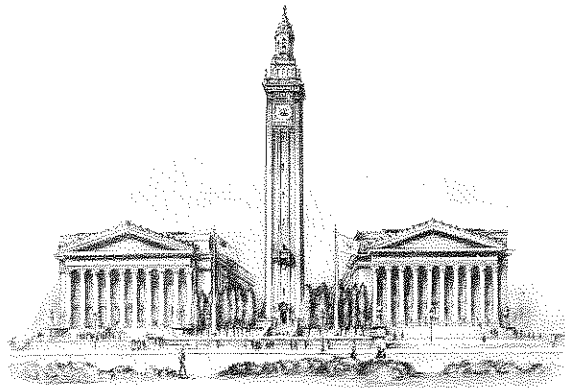
Attest: Edward G. Shea Clerk

A true copy,

SEAL

Attest: Edward G. Shea Clerk

DEPARTMENT OF  
STREETS  
AND  
ENGINEERING



THE CITY OF  
SPRINGFIELD, MASSACHUSETTS

August 26, 1954

County Commissioners  
County of Hampden  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

Subject: Public Access to Great Ponds.

This is to notify you that the City of Springfield has completed the grading of roadways leading to Loom Pond, Lake Lorraine and Five Mile Pond across land taken by the County for public access.

The limits of the public access have been designated and signs erected informing the public that they use the access ways at their own risk.

Very truly yours,

A handwritten signature in dark ink, appearing to read 'James J. Sullivan'. The signature is fluid and cursive, with a large, sweeping initial 'J'.

JAMES J. SULLIVAN, Superintendent  
Department of Streets and Engineering.

JJS:RED:mk



*Mr. Folley  
entered appearance  
Dec. 9, 1954*

October 8, 1954

Louis J. Deitz, Esq.,  
Attorney At Law,  
1214 Main Street,  
Springfield, Mass.

Dear Mr. Deitz:

This will confirm our telephone conversation of last Wednesday, October 6, 1954, in which I suggested to you that in the matter of Joyland Realty Corp., against the County of Hampden, the City of Springfield should be joined as a party defendant because in the final order of taking any damages incurred in the taking were ordered by the County Commissioners to be paid by the City of Springfield.

You indicated in our conversation that it has been suggested by your client that a discussion should be had relative to the swapping of the present right of way for a location for a right of way which would be of mutual advantage to your client and to the County.

I am sure that any suggestion that you might make to the County Commissioners relative to a proposed swap might receive their favorable consideration.

I am therefore suggesting to you that you write to the County Commissioners of Hampden County outlining to them the details of this proposed swap.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_ Counsel.

WJF/N

# Commonwealth of Massachusetts.

*Search  
2 05 PM  
10/5/54*

HAMPDEN, SS.

To County of Hampden and Daniel M. Walsh, Jr., as he is  
Treasurer of said Hampden County - and  
Athol Savings Bank, a banking corporation, having a usual place  
of business in Athol, in the County of Worcester, Commonwealth of  
Massachusetts, Mortgagee

GREETING :  
Whereas a ~~petition for assessment of damages~~ <sup>petition for assessment of damages</sup> has been begun against you in our Superior Court,  
within and for the county of Hampden, by Joyland Realty Corporation, a  
corporation organized under the laws of the Commonwealth of  
Massachusetts and having an usual place of business in Springfield  
in the County of Hampden, Commonwealth of Massachusetts.

WE COMMAND YOU, if you intend to make any defense, that on the first  
Monday of ~~December~~ next, which Monday is the re-  
turn day of this subpoena, or within such further time as the law allows,

you do cause your written appearance to be entered and your written answer or  
other lawful pleading to be filed in the office of the clerk of said court at Spring-  
field in said county first above named, and further that you defend against said  
suit according to law, if you intend to make any defense, and that you do and re-  
ceive what the court shall order, adjudge and decree therein.

Hereof fail not, at your peril, as otherwise said suit may be adjudged, and  
orders and decrees entered therein, in your absence.

WE ALSO NOTIFY YOU that application has been made in said suit, as  
appears in the bill of complaint  
filed therein, for a preliminary injunction

and that a hearing upon such application will be held at the court house at said  
Springfield

on the day of  
A. D. 19 , at o'clock A. M., at which you may appear  
and show cause why such application should not be granted.

In the meantime, until such hearing, WE COMMAND YOU

and your agents, attorneys and counsellors, and each and every one of them, to de-  
sist and refrain from

WITNESS, JOHN P. HIGGINS, CHIEF JUSTICE of our Superior Court,  
the twenty-seventh day of September in the year of  
our Lord one thousand nine hundred and fifty-four.

*True Copy, Attest  
Hon. J. Bailean Deputy Sheriff*  
EDWARD G. SHEA Clerk.

# Commonwealth of Massachusetts.

*2:05 PM  
10/5/54*

HAMPDEN, SS.

To County of Hampden and Daniel M. Walsh, Jr., as he is  
Treasurer of said Hampden County - and  
Athol Savings Bank, a banking corporation, having an usual place of  
business in Athol, in the County of Worcester, Commonwealth of  
Massachusetts, Mortgagee

GREETING :  
Whereas a ~~subpoena~~ <sup>petition for assessment of damages</sup> has been begun against you in our Superior Court,  
within and for the county of Hampden, by Joyland Realty Corporation, a  
corporation organized under the laws of the Commonwealth of  
Massachusetts and having an usual place of business in Springfield  
in the County of Hampden, Commonwealth of Massachusetts.

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Monday of December next, which Monday is the re-  
turn day of this subpoena, or within such further time as the law allows,

you do cause your written appearance to be entered and your written answer or  
other lawful pleading to be filed in the office of the clerk of said court at Spring-  
field in said county first above named, and further that you defend against said  
suit according to law, if you intend to make any defense, and that you do and re-  
ceive what the court shall order, adjudge and decree therein.

Hereof fail not, at your peril, as otherwise said suit may be adjudged, and  
orders and decrees entered therein, in your absence.

WE ALSO NOTIFY YOU that application has been made in said suit, as  
appears in the bill of complaint  
filed therein, for a preliminary injunction

and that a hearing upon such application will be held at the court house at said  
Springfield

on the day of  
A. D. 19 , at o'clock A. M., at which you may appear  
and show cause why such application should not be granted.

In the meantime, until such hearing, WE COMMAND YOU

and your agents, attorneys and counsellors, and each and every one of them, to de-  
sist and refrain from

WITNESS, JOHN P. HIGGINS, CHIEF JUSTICE of our Superior Court,  
the twenty-seventh day of September in the year of  
our Lord one thousand nine hundred and fifty-four.

*9 True Cpy. Attest*  
*Edw. G. Shea*  
*Edw. G. Shea* EDWARD G. SHEA Clerk.  
*Ans J. Barlow Deputy Sheriff*

February 17, 1954

James Douds, President,  
Hampden County Council  
of Sportsmen's Clubs,  
31 Charpentier Blvd,  
Millinansett, Mass.

*Law Offices*  
**LOUIS J. DEITZ**  
1214 MAIN STREET  
SPRINGFIELD, MASSACHUSETTS

January 25, 1955.

County Commissioners for Hampden County  
Hampden County Court House  
Springfield, Massachusetts

Gentlemen:


Re: Joyland Realty Corporation vs. County of Hampden

At the suggestion of your counselor, William J. Foley, Esquire, I am writing with reference to the taking of a right of way on property in the name of Joyland Realty Corporation on June 8, 1954, this property being formerly in the names of Samuel Tuvman and Archer Davidson, predecessors in title.

This right of way taken by the County seriously affects the use of the land by the present owner. The Joyland Realty Corporation is willing to grant a right of way at the northerly end of its property to give the public access to Loon Pond and without charge to the County or city, and if a change in your taking could be made to accommodate the Joyland Realty Corporation, I am sure that the purpose for the taking would be fulfilled and the land of my client preserved in taxable value.

I would appreciate the opinion of the Commissioners in this matter.

Very truly yours,

  
LOUIS J. DEITZ

d/m

January 26, 1955

Attorney Louis J. Deitz,  
1214 Main Street,  
Springfield, Mass.

Dear Mr. Deitz:

I have been instructed by the County Commissioners of Hampden County to reply to your letter dated January 25, 1955 relative to your suggestion that your client, Joyland Realty Corporation, would be willing to grant a right of way at the northerly end of its property so as to give public access to Loon Pond provided that the present right of way would be discontinued or abandoned.

Before your suggestion could be acted upon, it would appear from Section 4 of Chapter 343 of the Acts of 1951 that authority to abandon or discontinue the present right of way must be obtained from the General Court. Whether or not this authority will be granted or could be granted, the Commissioners are unable to say at this time. When such information becomes available, the Commissioners shall be pleased to discuss the suggested change.

Very truly yours,

HAMPDEN COUNTY COMMISSIONERS

By \_\_\_\_\_  
Counsel.

WJF/N

John M. Donald - Clerk D.F.W. - City of Hoped.

Harry Marceau Lake Loran Co. ass. B.P.W.

James J. Sullivan Supt. St. & Ry.

X- Petition - Act Read -

In favor of right way - not interested in part l. location

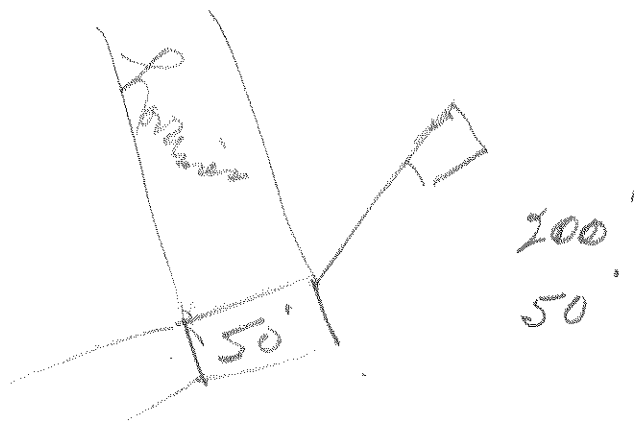
W. or D. - H. M.

Location:

Page Blvd. (Overide)

Lorimer - Sup. - Michigan

Cranelli



Needly to provide - description  
& plan.

Joyland	X
Passes 200	

Sully to  
 provide  
 description  
 p  
plan



April 7, 1959

James J. Sullivan, Supt.,  
Department of Streets and Engineering,  
Municipal Building,  
Springfield, Massachusetts.

Dear Mr. Sullivan:

In 1955, by courtesy of your Department, signs were made and installed at the public access to Loon Pond, Lake Lorraine and Five Mile Pond in the City of Springfield.

It has been noted that these signs have disappeared from their locations and the County Commissioners of Hampden County would be most appreciative if your Department would have these signs replaced and re-installed.

It would also be appreciated if your Department would make up two similar signs, one for public access to Nine Mile Pond in the Town of Wilbraham and the other for Chapin Pond in the Town of Ludlow.

I shall be very happy to discuss these matters with you or any member of your Department.

Very truly yours,

COUNSEL FOR HAMPDEN  
COUNTY COMMISSIONERS.

WJF/N

Springfield City Water Commissioners - Additional West Parish Filters - Contract 54 - November 1961



1961 Reports

Information for Bidders, Proposal Specifications, Contract & Bond - Board of Water Commissioners, Springfield

City/Town	Westfield
Name	Springfield Water Commissioners

# **BOARD OF WATER COMMISSIONERS**

SPRINGFIELD, MASSACHUSETTS

## **COMMISSIONERS**

THOMAS J. O'CONNOR, JR., Mayor—LOUIS J. GENTILE, Chairman

ARTHUR J. STEIN

• • •

PETER C. KARALEKAS, Chief Water Engineer

## **ADDITIONAL WEST PARISH FILTERS**

### **CONTRACT 54**

INFORMATION for BIDDERS,  
PROPOSAL, SPECIFICATIONS,  
CONTRACT and BOND

**CLINTON BOGERT ENGINEERS**

**C O N S U L T A N T S**

NEW YORK, N. Y.

NOVEMBER 1961

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INFORMATION FOR BIDDERS

INFORMATION FOR BIDDERS

1. Receipt and Opening of Bids. The Board of Water Commissioners of the City of Springfield (herein called the "Board") invites bids on forms of Proposals to be supplied by the Board and ultimately attached to a Contract. All blanks on these forms must be appropriately filled in as required. Bids will be received by the Board at the office of the Board, in City Hall, on \_\_\_\_\_ until 12:00 noon, and at said place and time will be opened and read aloud. Bids shall be enclosed in opaque sealed envelopes plainly marked "Proposal for Contract 54, Additional West Parish Filters".

Any bid may be withdrawn prior to the scheduled time for opening. No bidder may withdraw a bid within 60 days after the date of the opening of the bids.

2. Description of Contract 54. Contract 54 comprises all equipment, materials, and work necessary for the construction of Additional West Parish Filters. The work consists essentially of constructing the following:

- (a) Intake Structure,
- (b) Regulator House, and modifications to an existing Regulator House,
- (c) Sand Washer Houses,
- (d) filters,
- (e) sand bins,
- (f) manholes and meter chamber,
- (g) septic tank and tile field,
- (h) modifications to an existing wash water settling basin,
- (i) pipe, valves, and equipment, and
- (j) any other appurtenances and work necessary to complete the construction of Additional West Parish Filters.

3. Time for Completing Work. The attention of the bidder is directed to the exacting requirements of the Contract and the Specifications which stipulate that the entire work shall be completed within 500 consecutive calendar days from date specified in the order of the Board to the Contractor directing him to proceed with the work.

The attention of the bidder is directed to the fact that he may be required to work his forces overtime in order to complete the various portions of the work within the time limits stipulated herein. All costs of such overtime work shall be considered as having been included in the prices bid for the various items of the Contract.

4. Intent of Contract Documents. The intent of the Contract Documents is to obtain a complete job in first class working condition, and it shall be understood that the bidder has satisfied himself as to the full requirements of the Contract, and has based his proposal upon such understanding. Compensation for all work and materials required to complete this Contract shall be considered included in the various lump sum and unit prices bid on the items as listed in the Proposal.

5. Addenda and Interpretations. No interpretations of the meanings of the Contract Documents will be made to any prospective bidder orally. Every request for such interpretation should be in writing addressed to Clinton Bogert Engineers, Consultants, 145 East 32nd Street, New York 16, N.Y., and to be given

consideration must be received at least 7 days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which will be mailed by registered mail with return receipt requested, to all prospective bidders (at the respective address furnished for such purposes) not later than 3 days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve said bidder from any obligations under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

6. Conditions of Work. Each bidder must inform himself fully of the conditions relating to the construction and labor under which the work is now or will be performed; failure so to do will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of the Contract Documents and to complete the contemplated work for the consideration set forth in his bid. Insofar as possible, the Contractor in carrying out of his work shall employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to receive or examine any form, instrument or document shall in no wise relieve any bidder from any obligation in respect of his bid.

Bidders are notified that it is obligatory upon them to obtain by their own means information which they may require as to the physical conditions, and in particular as to the subsurface conditions. The Board will make available to the bidder all information obtained by investigations and from various sources as to the probable position of existing subsurface conditions, but the Board makes no guarantee or insinuations with respect to subsurface conditions, and each bidder in bidding represents that he relies exclusively upon his own investigations and he makes his bid with a full knowledge of the kind, quality and quantity of work required.

The following prints showing borings and foundation tests made by Jersey Testing Laboratories Inc. of Mass. will be attached to the drawings for the bidder's information:

Drawing SM-100 - Foundation Tests - January 30, 1961  
Report No. SP45961 - 1st Report of Foundation Soil Tests - November 19, 1960  
Report No. SP50838 - 1st Supplementary Report of Foundation Soil Tests -  
November 29, 1960

The Board makes no expressed or implied guarantee as to the accuracy of such information or any interpretation of same.

Samples of the above borings (except for samples from Boring location B-3 which have been lost), may be examined in the Garage at the West Parish Filters.

The Contractor is required to schedule his work so he will not interfere with the operations of the existing facilities. The Contractor will be required to work in close cooperation and coordination with the Department and its duly authorized agents to assure that a minimum of changes in the normal operating procedures, and a minimum of nuisances, result from his operations.



The Contractor should note some of the following specific construction requirements:

- (a) No work shall be done in Wash Water Settling Basin No. 2 until the Intake Structure has been constructed (see Contract Item 1 and Item 23).
- (b) The Intake Structure shall not be constructed until the Raw Water Settling Basin is dewatered (see Contract Item 23).
- (c) Prior to removing, relocating, or connecting to any existing pipe, the Contractor shall notify the Department and obtain its permission to do such work.

7. Qualifications of Bidders. Before the award of the Contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work in a satisfactory manner and within the time stipulated, and that he has had experience in constructing works of the same nature. Any bidder may be required after the opening of bids to fill in upon a blank form to be furnished by the Board to the bidder, a statement of the then existing qualifications and financial condition of the bidder, and to submit the bidder's last financial statement prepared and certified to by a certified public accountant. The Board reserves the right to reject any bid if the evidence submitted by or investigation of such bidder fails to satisfy the Board that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

8. Plant and Organization Required. It is the purpose of the Board to build the works under its charge in the shortest time consistent with good work. To this end, the Contractor will be required to use approved methods and appliances for doing the various parts of the work. Complete and well-designed construction plants and effective organization will be insisted upon. The successful bidder must prove to the satisfaction of the Board that he can secure, or has at hand, adequate equipment and personnel for completing the work within the time stipulated.

9. Connections to Existing Pipes. The connections to existing pipes and services at the locations shown or ordered, will be made only after notification to the Department, and under the direct supervision of the Department. Special consideration must be given by the Contractor to the maintenance of sanitary conditions, to the use of equipment and explosives, and to the placing of equipment and material, so that normal operation of the existing system will not be interrupted, except as provided herein.

10. Protection of City Plant and Property. To prevent malicious tampering with the existing facilities and to protect City property at the site, the Board may furnish and pay for patrol and surveillance by an approved detective or security agency.

11. Known Structures and Utilities. The drawings show the approximate location of all known structures and utilities. The location of subsurface structures, utilities and services shown on the drawings are based upon information furnished by the City, supplemented by surveys by the Engineers. They are not guaranteed and, as shown, may be only approximately correct. The Contractor shall be responsible for checking this information, to satisfy himself as to the

existence and locations of all structures and utilities. Compensation for maintaining and relocating or restoring these known structures, pipes and conduits, including culverts and other drainage facilities will be considered as included in the prices bid for the various items in the Proposal.

12. Preparation of Proposal. Proposals must be submitted on the prescribed form, on which all blank spaces for bids and for information as to the bidder, must be filled in, written in ink or typewritten. Bid prices, both units and lump sums, must be filled in, together with the extended total, in both words and numerals as provided for. The bidder shall sign his name correctly. If the Proposal is made by an individual, his name and post-office address must be shown. If the Proposal is made by a firm, partnership, or corporation, the Proposal must be signed by an official of the firm, partnership, or corporation authorized to sign contracts, and must also show the post-office address of the firm, partnership, or corporation. The names of all persons signing shall be printed below the signature.

Each bidder shall complete the "Statement of Pipe Manufacture" at the end of the Proposal, and shall attach all required statements thereto.

13. Approximate Quantities. The quantities given in the Proposal are approximate only, being given as a basis for the uniform comparison of bids, and the Board does not expressly or by implication agree that the actual amount of work will correspond therewith.

The Bidders' attention is called to the fact that the quantity for Item 7b may vary considerably from that noted in the Proposal.

14. Bidders to Check Approximate Quantities. Bidders must satisfy themselves by personal examination of the location of the proposed work, and by such other means as they may choose, as to the actual conditions and requirements of the work and the accuracy of the estimate of the Engineer, and shall not, at any time after the submission of a bid, dispute or complain of such statement or estimate of the Engineer, nor assert that there has been any misunderstanding in regard to the nature or amount of the work to be done.

15. Errors in Bid. In the event there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event there is a discrepancy between the unit prices or the lump sums written in words and written in figures, the unit prices or lump sums written in words shall govern.

16. Balanced Bid Prices. Balanced bids are essential. The Board reserves the right to refuse to consider any bid which contains what the Board deems to be unbalanced unit prices.

The parts of the work have been divided into items in order to enable the bidder to bid for the different portions of the work in accordance with his estimate of costs, so that in the event of an increase or decrease in the quantity of any particular item of work, the actual payment may fairly represent the value of the work completed for that particular item.

17. Prices Not Changed by Change of Quantities. An increase or decrease in the quantity for any unit price item shall not be regarded as a sufficient ground for an increase or decrease in the price of that item, nor in the time allowed for the completion of the work, except as provided in the Contract.

No claim for anticipated profits, or for loss of profit, shall be made because of a difference between the quantities of work actually done or materials actually delivered, and the estimated quantities stated in the Proposal.

18. Bid Security. Each bid must be accompanied by cash, cashier's check or certified check for not less than 5 percent of the amount of the bid, issued by a recognized bank or trust company. A bid bond will not be accepted. Such checks or cash will be returned to all except the three lowest formal bidders within three days after the opening of bids, and the remaining checks will be returned to the three lowest bidders within 48 hours after the Board and the accepted bidder have executed the Contract; or if no contract has been so executed within 60 days after the date of the opening of bids, upon demand of the bidder at any time thereafter so long as he has not been notified of the acceptance of his bid.

19. Consent of Surety. In addition to the cash or check for bid security, each bid must be accompanied by a bid letter from a surety company, licensed to do business in the Commonwealth of Massachusetts, agreeing, in event of the award of the Contract, to furnish a performance bond of a face value of 100 percent of the amount of the bid.

20. Performance Bond. Simultaneously with his delivery of the executed Contract, the successful bidder must deliver to the Board an executed bond in the amount of 100 percent of the estimated Contract amount as security for the faithful performance of his contract and for the payment of all persons performing labor or furnishing materials in connection therewith, prepared on the Performance Bond attached hereto and having as security thereon such surety company or companies as are acceptable to the Board, and as are authorized to transact business in the Commonwealth of Massachusetts.

21. Liquidated Damages for Failure to Enter into Contract. The successful bidder, upon his failure or refusal to execute and deliver the Contract and bond required within 5 days after he has received notice of the acceptance of his bid, shall forfeit to the Board as liquidated damages for such failure or refusal, the security deposited with his bid.

22. Basis of Award. The Contract will, at the discretion of the Board be awarded to that responsible bidder whose bid, as shown by the summation of the total bids on lump sum and unit price items, is the least number of dollars. The Board reserves the right to waive any informality in the bids received and select the bid, the acceptance of which will, in its judgment, best secure the efficient performance of the work.

23. Rejection of Bids. The Board reserves the right to reject any or all bids, and to reject any bid if the evidence submitted by or investigation of such bidder fails to satisfy the Board that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Bids which are incomplete, conditional or obscure, or which contain additions not called for, erasures, alterations, or irregularities of any kind, may be rejected as informal.

Louis J. Gentile, Chairman  
 Arthur J. Stein  
 Thomas J. O'Connor, Jr., Mayor  
 Board of Water Commissioners  
 Peter C. Karalekas  
 Chief Water Engineer

PROPOSAL

## PROPOSAL

P-1

## CONTRACT 54

To the Board of Water Commissioners  
of the City of Springfield, Massachusetts

Made by \_\_\_\_\_

P. O. Address \_\_\_\_\_

Gentlemen:

Pursuant to and in compliance with your Advertisement for Bids dated \_\_\_\_\_ and the Information for Bidders relating thereto, the undersigned states that he has examined the Contract Documents and the site, and that he understands the purport and magnitude of the work intended, and the undersigned hereby offers to furnish all plant, labor, materials, supplies, equipment, and other facilities and things necessary or proper for or incidental to the proper construction of the work advertised, and to construct the said work in strict accordance with the Contract Documents and such detailed directions, plans, and drawings as may be furnished from time to time during the progress of construction by the Engineer at the following unit and lump sum prices, which prices include all incidental work, viz:

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total or Lump Sum</u>
1	36,000 Cu. Yd.	Earth Excavation	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ _____)	(\$ _____)
2	50 Cu. Yd.	Rock Excavation	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ _____)	(\$ _____)
3	20 Each	Soil Bearing Tests	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ _____)	(\$ _____)
4	4,000 Cu. Yd	Backfill	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ _____)	(\$ _____)

Note: Bidder must show price for every item, written in ink or typewritten, both in words and in figures, and carry out and add extensions.

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total or Lump Sum</u>
5	300 Lin. Ft.	Special Trench	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
6	50 Cu. Yd.	Foundation Material	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
7a	5,000 Cu. Yd.	Special Compacted Foundation	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
7b	39,000 Cu. Yd.	Earth Excavation and Special Compacted Foundation, in the Existing Fill Area	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
8	200 Sq. Yd.	Rip-Rap	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
9a	5,800 Cu. Yd.	4,000 psi Concrete	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
9b	10,300 Cu. Yd.	3,000 psi Concrete	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total or Lump Sum</u>
9c	20 Cu.Yd.	2,000 psi Concrete	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
10a	1,750,000 Lb.	Deformed Steel Reinforcement Bars	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
10b	170,000 Lb.	Plain Steel Reinforcement Bars	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
10c	8,000 lb.	Welded Wire Fabric	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
11	6,400 Lb.	Structural Steel	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
12a	192 Each	Filter Manhole Frames and Covers	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
12b	1 Each	Septic Tank Manhole Frame and Cover	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
12c	1 Each	Meter Chamber Slab Type Frame and Cover	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
12d	8 Each	Other Slab Type Frames and Covers	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
12e	80 Each	Drain Inlets	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
13a	86 Each	Safety Treads	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
13b	40 Each	Stair Treads	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
14	1,500 Lb.	Structural Aluminum	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
15	1,200 Lb.	Aluminum Grating	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )



<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
16	100 Sq. Ft.	Aluminum Sidewalk and Access Doors	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
17	430 Lin. Ft.	Aluminum Handrail	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
18	400 Lin. Ft.	Aluminum Ladders	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
19	650 Lin. Ft.	Aluminum Guard Rail	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20a	1,020 Lin. Ft.	60 in. Prestressed Reinforced Concrete Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20b	230 Lin. Ft.	54 in. Prestressed Reinforced Concrete Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20c	750 Lin. Ft.	42 in. Prestressed Reinforced Concrete Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
20d	45 Lin. Ft.	36 in. Prestressed Reinforced Concrete Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20e	175 Lin. Ft.	30 in. Prestressed Reinforced Concrete Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20f	330 Lin. Ft.	30 in. Reinforced Concrete Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20g	10 Lin. Ft.	12 in. Cast Iron Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20h	1,270 Lin.Ft.	8 in. Cast Iron Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20i	1,140 Lin.Ft.	6 in. Cast Iron Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20j	630 Lin.Ft.	4 in. Wrought-Iron Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
20k	90 Lin. Ft.	3 in. Wrought-Iron Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20l	10 Lin. Ft.	1-1/4 in. Wrought-Iron Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20m	10 Lin. Ft.	42" Steel Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20n	20 Lin. Ft.	2 in. Copper Tube	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20o	40 Lin. Ft.	1-1/2 in. Copper Tube	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20p	260 Lin. Ft.	1 in. Copper Tube	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20q	20 Lin. Ft.	1/8 in. Copper Tube	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
20r	1,030 Lin. Ft.	10 in. Clay Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20s	2,500 Lin. Ft.	8 in. Clay Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20t	30 Lin. Ft.	6 in. Clay Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20u	240 Lin. Ft.	4 in. Clay Pipe	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
20v	Lump Sum	Removing Existing Pipe and Structures		<u>Dollars</u>
				<u>Cents</u>
				(\$ <u>          </u> )
21a	2 Each	42 in. Spur Gear Gate Valves	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
21b	2 Each	42 in. Bevel Gear Gate Valves	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
21c	1 Each	12 in. Gate Valves	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
21d	1 Each	8 in. Gate Valves	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
21e	7 Each	6 in. Gate Valves	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
21f	6 Each	4 in. Gate Valves	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
21g	4 Each	3/4 in. Curb Stops	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
21h	2 Each	Air Vent Assemblies	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
22a	2 Each	Sanitary Manholes	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
22b	2 Each	Venturi Manholes	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
22c	1 Each	Manhole 'A'	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
22d	1 Each	Manhole 'B'	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
22e	1 Each	Manhole 'C'	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
22f	1 Each	Manhole 'D'	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
23	Lump Sum	Intake Structure		<u>Dollars</u>
				<u>Cents</u>
				(\$ <u>          </u> )
24a	2,300 Cu.Yd.	Filter Gravel	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
24b	18,700 Cu.Yd.	Filter Sand	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
25	7,040 Lin. Ft.	Filter Underdrains	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
26	Lump Sum	Equipment		<u>Dollars</u>
				<u>Cents</u>
				(\$ <u>          </u> )
27	Lump Sum	Inside Pipe and Valves		<u>Dollars</u>
				<u>Cents</u>
				(\$ <u>          </u> )
28	Lump Sum	Architectural Work		<u>Dollars</u>
				<u>Cents</u>
				(\$ <u>          </u> )
29	Lump Sum	Heating and Ventilating Work		<u>Dollars</u>
				<u>Cents</u>
				(\$ <u>          </u> )
30	Lump Sum	Electrical Work		<u>Dollars</u>
				<u>Cents</u>
				(\$ <u>          </u> )

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
31a	42,000 Cu.Yd.	Earth Fill	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
31b	5,300 Cu.Yd.	Sand Fill	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
31c	140 Cu.Yd.	Gravel Fill	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
32a	33,000 Sq.Yd.	New Topsoil	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
32b	50 Sq.Yd.	Planting Strip	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
32c	25,000 Sq.Yd.	Seeding	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )
32d	8,000 Sq.Yd.	Sodding	<u>Dollars</u>	<u>Dollars</u>
			<u>Cents</u>	<u>Cents</u>
			(\$ <u>          </u> )	(\$ <u>          </u> )





undersigned shall fail to execute the Contract with, and to give a bond to the Board according to the Information for Bidders, then the cash and/or check shall become the property of the Board; otherwise it (or they) shall be returned to the undersigned.

If written notice of the acceptance of his bid is mailed, telegraphed or delivered to the undersigned within 60 days after the date of opening of the bids, or any time thereafter before this bid is withdrawn, the undersigned will, within 5 days after date of such mailing, telegraphing or delivery of such notice, execute and deliver a Contract and a Performance Bond, as attached to the Information for Bidders.

The undersigned further agrees to comply with the requirements as to conditions of employment, wage rates and hours of labor set forth in the Contract.

Dated \_\_\_\_\_

\_\_\_\_\_  
\*\*

By \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_

\*\*Insert Bidder's name. If a corporation, give the State of Incorporation using the phrase "a corporation organized under the laws of \_\_\_\_\_".

If a partnership, give names of partners, using also, the phrase "co-partners trading and doing business under the firm name and style of \_\_\_\_\_".

If an individual using a trade name, give individual name, using also the phrase "an individual doing business under the firm name and styles of \_\_\_\_\_".

NOTE: Bidder should date and sign proposal, give his address and insert necessary information covering cash or certified check. Show price of every item both in writing and in figures; carry out and add extensions. The written amount will control in case of discrepancy. In case of error in bidder's extensions, and/or total; the computed total of the Engineer shall govern.

Full names and residences of all persons interested in this proposal as principals are as follows:

Name \_\_\_\_\_ Address \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_

STATE OF        )  
                  ) SS:  
COUNTY OF     )

\_\_\_\_\_ the  
signer of the above proposal, being duly sworn, says that the several matters  
stated therein are in all respects true to the knowledge of the deponent.

Sworn to and subscribed to before me this \_\_\_\_\_  
day of \_\_\_\_\_ 19\_\_.

\_\_\_\_\_  
Notary Public

STATEMENT OF PIPE MANUFACTURE

Each bidder shall execute the following statement relative to the manufacture of the prestressed reinforced concrete pipe specified.

The pipe manufacturer shall have had at least five years experience in the manufacture of the size, type and strength classification of pipe specified herein.

Pipe Manufacturer \_\_\_\_\_

Address of Main Office \_\_\_\_\_

The bidder shall obtain the following information from the manufacturer:

Location of Plant or Plants available to produce the pipe specified \_\_\_\_\_

List of equipment available for use in producing this pipe \_\_\_\_\_

Minimum time in weeks required by pipe manufacturer from date of an order to start of delivery of pipe \_\_\_\_\_

Rate of production of pipe, feet per day \_\_\_\_\_

The bidder shall obtain from the manufacturer a list which shall be attached hereto covering a period of not less than five years, which shows successfully completed projects for which the manufacturer has supplied large diameter pipe of the type specified. The list shall show the size, operating pressure, length, date of manufacture, name and location of the project, and consulting engineer.

The Board reserves the right to make such further investigations of the manufacturer of the pipe as it deems necessary, and further reserves the right to reject a bid based on the use of pipe supplied by a manufacturer lacking adequate experience, or unable to assure an adequate supply of pipe of proper design and manufacture to meet the requirements of this proposed project.

CONTRACT

CONTRACT

This Agreement for the construction of Contract 54, Additional West Parish Filters, made and entered into in sextuplicate this.....day of .....in the year Nineteen Hundred and Sixty....., by and between the City of Springfield, a municipal corporation created and organized under the laws of the Commonwealth of Massachusetts and acting under and by its Board of Water Commissioners, thereunto duly authorized, party of the first part, and.....hereinafter designated the Contractor, party of the second part,

Witnesseth: That the parties of these presents, for themselves and for their successors or assigns, each in the consideration of the undertakings, promises and agreements on the part of the other herein contained, do hereby covenant, undertake, promise, and agree as set forth in the following pages.

Art. 1. DEFINITIONS: A number of words frequently used in the Contract Documents shall have the following meanings:

"Contract" shall refer to this Agreement, also to the sum total of work subject to this Agreement.

"Board" or "Board of Water Commissioners" shall mean the Board of Water Commissioners of the City of Springfield or any person or officer duly authorized by it to act for the Board of Water Commissioners in the Execution of the work covered by this Contract.

"City" shall mean the City of Springfield, the Municipal Water Works or its Board of Water Commissioners, subscribing party of the first part.

"Department" or "Water Works" shall mean the Municipal Water Works or the Board of Water Commissioners of the City of Springfield.

"Contractor" (with a capital "C"), or a pronoun in place thereof, shall mean the subscribing party of the second part entering into this Contract, and his or its legal representative. For convenience, the Contractor is referred to herein as an individual.

"Engineer" or a pronoun in place thereof, shall mean Clinton Bogert Engineers, Consultants, or their duly authorized representative, or successors, who are designated by the Board to perform the duties of the Engineer.

"Surety" shall mean the person, persons or Corporate Body which is bound with and for the Contractor, and which engages to be responsible for his payment of all debts pertaining to, and for his acceptable performance of, the work for which he has contracted, as more particularly set forth in the Performance Bond.

"Site" shall mean the area or areas of ground which is the location for performance of work.

"Work", as used herein, shall mean all plant, labor, materials, supplies, equipment, rentals, insurance, Performance Bond, and other facilities and things agreed to be furnished and done by the Contractor, and necessary or proper for or incidental to the carrying out and completion of the terms of

this Contract, including all tests, and operating of equipment, and also the structures, or parts thereof, on which work is underway or completed.

"Additional Work", as used herein, refers to and includes work required by the Board, which in the judgement of the Engineer, involves changes in or addition to that required by the plans, specifications, and addenda in their present form.

"Drawings" shall mean the Contract Drawings, all supplementary drawings furnished by the Engineer pertinent or supplemental thereto, and such detail or working drawings as the Contract Documents may require the Contractor to furnish, when such drawings have been duly approved.

"Structures", as used in this Contract, shall mean all buildings, houses, basins, reservoirs, tanks, pipes, valves, drains, sewers, manholes, water, gas, electric, and other facilities, and other works which are to be built under this Contract, or which may be encountered in the work and which are not otherwise classified herein.

"Leakage" shall mean the loss of water from any structure.

"Material" (or "materials") shall mean all the things of any kind, nature, and class as may be specified which become a part of or are used in the construction of the work, together with all manufactured or prepared materials, articles, equipment, accessories, appliances, appurtenances, supplies, and parts incorporated therein or placed thereon.

"Phrasing" Wherever in the specifications or upon the drawings the words "directed", "required", "permitted", "ordered", "designated", "approved", or words of like import are used, it shall be understood that the direction, requirements, permission, order, designation, or approval of the Engineer is intended.

Wherever in the specifications the words "detailed", "noted", "shown", or words of like import are used, it shall be understood that these words mean as detailed, noted, or shown on the drawings; and where the word "specified" is used, it shall be understood to mean as specified herein.

Art. 2. CONTRACT DOCUMENTS. Whenever the term "Contract Documents" is used, it shall mean and include this Contract, the Advertisement, Information for Bidders, Proposal, Statement of Pipe Manufacture, Performance Bond, Specifications General Provisions, (General Specifications, and Contract Items), Drawings, and Addenda No. \_\_\_\_\_.

The Contract Documents are complementary and what is called for by any one or more of them though not mentioned in the others, shall be as binding as if called for by all of them. In case of any conflict or inconsistency between the provisions of the Contract and the specifications, the provisions of the Contract shall govern.

Anything shown on the drawings and not mentioned in the specifications or mentioned in the specifications and not shown on the drawings, shall have the same effect as if shown or mentioned respectively, in both. In case of any conflict or inconsistency between the drawings and specifications, the matter shall be submitted by the Contractor to the Engineer, whose decision thereon shall be conclusive and binding on the Contractor as if same were specifically set forth in the Contract Documents.

Art. 3. SCOPE OF THE WORK. The Contractor shall, under the bid prices, furnish all labor, pipes, materials, plant, power, light, heat, fuel, tools, appliances, equipment, supplies and any and all other means of construction necessary or proper for performing and completing the work; do all work including additional work, and pay all costs incidental thereto; restore to their original condition all surfaces disturbed; bear all cost of insurance; bear all losses due to the nature of the work and cost incidental to suspension or discontinuance of the work, except as herein provided; take all risks of whatever nature; indemnify the City from all claims, as herein provided; obtain and pay for all permits unless otherwise provided; conform to all federal, commonwealth, county, or municipal legislation and requirements; abide by all rules and regulations of utility companies; undertake all cutting, fitting, or patching of his work required to bring it into conformity with the Contract Documents; leave intact the work of adjoining contractors, unless otherwise ordered by the Engineer; perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property, to the satisfaction of the Engineer and in strict accordance with the Contract Documents; protect the work during the construction; clean up the work during and after construction; and maintain it until final acceptance, or as provided in Art. 20.

The Contractor shall, under the bid prices, do all work and pay all costs of cutting, fitting, patching, protecting, supporting, maintaining, repairing if damaged, relocating, and restoring all surfaces, subsurface and overhead structures, and all other property, including the work of other contractors, and pipes, conduits, ducts, tubes, chambers and appurtenances, public or private, in the vicinity of the work, except those structures which the City or other owners are required by law, franchise, permit, contract, consent or agreement, to protect, support, maintain, relocate or restore.

Art. 4. REPRESENTATIONS OF CONTRACTOR. The Contractor represents and warrants:

- (a) that he is financially solvent and that he is experienced in and competent to perform the type of work and to furnish the plant, materials, supplies and equipment, to be so performed or furnished by him; and
- (b) that he is familiar with all federal, commonwealth, county and municipal laws, ordinances and regulations, which may in any way affect the work or those employed therein, including, but not limited to, any special acts relating to the work or to the project of which it is a part; and
- (c) that such temporary and permanent work required by the Contract Documents as is to be done by him can be satisfactorily constructed and used for the purposes for which it is intended, and that such construction will not injure any person or damage any property; and
- (d) that he will make no claims against the City, if in carrying out the project he finds that the actual conditions encountered do not conform to the information shown in the Contract Documents or to conditions that might be expected from surface indications.



Art. 5. RESPONSIBILITY OF CONTRACTOR. The Contractor shall take all responsibility of the work, shall bear all losses resulting to him on account of the amount or character of the work, or from any unforeseen obstructions, encumbrances or difficulties which may be encountered, (except in those cases where the owners of utilities are required by law or otherwise, to make necessary changes or to remove obstructions, and to provide maintenance), or from the breaking of or leakage from any pipes, water mains or sewers, or because of the nature of the land in or on which the work is done is different from what is assumed or was expected, or on account of the weather, floods or other causes; and he shall assume the defense of and indemnify and save harmless the City and its officers and agents, from all claims of any kind arising from the performance of this Contract, except claims for injuries to or death of employees of the City not due to negligence of the Contractor or of any subcontractor performing any portion of the work included in this Contract.

Art. 6. SUBCONTRACTORS. If the Contractor shall cause any part of this Contract to be performed by a subcontractor, the provisions of this Contract shall apply to such subcontractor, and his officers, agents and employees in all respects as if he and they were employees of the Contractor, and the Contractor shall not be in any manner thereby discharged from his obligations and liabilities hereunder, but shall be liable hereunder for all acts and negligence of the subcontractor, his officers, agents, and employees as if they were employees of the Contractor. The employees of the subcontractor shall be subject to the same provisions hereof as the employees of the Contractor; and the work and materials furnished by the subcontractor and the insurance requirements, shall be subject to the provisions hereof as if furnished directly by the Contractor.

The Contractor, before making any subcontract for any portion of the work, shall state in writing to the Board the name of the proposed subcontractor, the nature and extent of the work to be done or the materials or equipment to be furnished by such subcontractor, his place of business and such other information as the Board may require. The Contractor shall not award any subcontract until the proposed subcontractor has been approved by the Board, and evidence has been presented to the Board that employees of the subcontractor are protected by Compensation Insurance, and that the subcontractor has taken out Public Liability and Property Damage Insurance, as required in Art. 51.

The Board reserves the right to withhold approval of subcontracts, the sum total of which exceeds 60 percent of this Contract, and to require the Contractor to perform directly with his own employees not less than 40 percent of the total value of the Contract held by him, such percentages to be calculated on the basis of the estimated contract amount or the contract price entered in Art. 22.

Upon approval by the Board of any subcontractor, the Contractor shall file with the Board a true copy of his contract with such subcontractor before the latter commences work, and in any event within two weeks after approval.

Art. 7. PERSONAL ATTENTION AND ASSIGNMENT. The Contractor shall give his personal attention constantly to the faithful prosecution of the work, and shall be present, either in person or by a duly authorized competent representative, on the site of the work, continually during its progress, to receive directions or instructions from the Engineer. He shall maintain, as approved, a field office at or near the site, where copies of the Contract Documents and of all

working drawings shall be kept ready for use at any time. Orders from the Engineer left at this office shall be considered as delivered to the Contractor.

The Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract, or his right, title or interest in or to the same or any part thereof, without the previous consent in writing of the Board endorsed upon the copies of the assignment filed in the office of the Board, and he shall not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this Contract, unless by and with the like consent signified in like manner.

If the Contractor shall, without such previous written consent of the Board, assign, transfer, convey, sublet or otherwise dispose of this Contract, or of his right, title or interest therein or any of the monies to become due under this Contract, to any other person, company or other corporation, this Contract may, at the option of the Board, be revoked and annulled, and the City shall thereupon be relieved and discharged from any and all liability and obligation growing out of the same to the Contractor, and to his assignee or transferee, provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the Laws of the Commonwealth of Massachusetts; and no right under this Contract, or any monies to become due hereunder, shall be asserted against the Board in law or equity, by reason of any so-called assignment of this Contract, or any part thereof, or any monies to grow due hereunder, unless authorized as aforesaid by the written consent of the Board.

In the event the Board shall elect to terminate the Contract under the terms of this Article, the surety shall continue to remain liable for any and all claims which the Board may have against said Contractor.

Art. 8. PROPER METHODS AND APPLIANCES. If at any time before commencement, or during the prosecution, of the work under this Contract, the methods and appliances proposed for use, or in actual use, appear to the Engineer to be inefficient or inappropriate for securing the quality of work, or the rate of progress stipulated in the Contract, the Engineer may order the Contractor to improve his methods, or secure better equipment, and the Contractor shall conform to such order; but the failure of the Engineer to issue such an order or orders will not relieve the Contractor of his responsibility and obligation to produce work of the quality and at the rate set forth in these Contract Documents.

Art. 9. SUPERINTENDENCE BY CONTRACTOR. The Contractor will employ on the site during the performance of any part of the work a competent superintendent or foreman who shall be satisfactory to the Engineer, and who shall not be replaced except with the consent of the Engineer, unless he shall cease to be in the employ of the Contractor. Such superintendent or foreman shall represent and have full authority to act for the Contractor in his absence and all directions given such superintendent shall be as binding as if given to the Contractor.

Art. 10. COMPETENT WORKMEN. The Contractor shall employ only competent, skillful men to do the work, and whenever the Engineer shall notify the Contractor, in writing, that any man on the work is, in his opinion, incompetent, unfaithful, disorderly or otherwise unsatisfactory, such man shall be discharged from the work, and shall not again be employed on it, except with the consent of the Engineer.

Art. 11. TIME OF DOING THE WORK. The Contractor shall commence the work embraced in this Contract within 10 days after the service of a notice by the Board on him directing him to begin work, and shall complete the same in all respects, except maintenance, within 500 consecutive calendar days from the date specified in said notice.

Art. 12. BEGINNING WORK. Upon receipt of written orders from the Board to begin work on a designated date, the Contractor shall start work promptly and at such point or points as the Engineer may designate.

Art. 13. NIGHT AND SUNDAY WORK. Unless otherwise especially permitted by the Engineer, no work shall be done between the hours of 6:00 P.M. and 7:00 A.M., or on Sunday, except as necessary for the proper care and protection of the work already performed. The Engineer shall be informed a reasonable time in advance of the beginning of the performance of such work. Only such work will be permitted at night as can be done satisfactorily and in a first class manner, and without disturbance to adjoining property owners. Good lighting and all other facilities for carrying out and inspecting the work shall be provided and maintained at all points where such work is being done.

Art. 14. CONSTRUCTION PROGRAM. Within two weeks after the date of the order to commence work hereunder, the Contractor shall prepare and submit to the Engineer for approval a detailed chronological construction program, or time table, setting forth clearly each step of the work and the time allowed for each such step in order to complete all the work fully within the time fixed herein and if required, he shall revise and resubmit the program until it is approved by the Engineer.

The Contractor, within seven days after being notified of an unsatisfactory program, shall resubmit a revised program for approval. If, subsequent to the initial approval, unforeseen circumstances necessitate a modification of the approved construction program, as determined by the Engineer, the Contractor, within seven days after such notification, shall submit a revised program for approval.

The Contractor shall adhere to such program, and, if necessary to do so, he shall supply, without increased cost to the Board, additional labor and/or additional shifts of labor and overtime, and procure materials and equipment more promptly.

The Engineer shall have the right to order the Contractor to prosecute the work simultaneously at and from as many different points or parts as the Engineer may deem necessary to assure completion within the contract time.

The Contractor shall also submit, with such construction program, his plans for plant and his specifications of methods of construction and of handling materials which he proposes to use in the performance of work hereunder. Approval by the Engineer, however, of any proposed plan of plant and such specification shall not be deemed to relieve the Contractor from any liability or responsibility placed upon him by this Contract or by law.

Art. 15. TIME OF THE ESSENCE. Inasmuch as the provisions of this Contract relating to the time for performance and completion of the work are for the purpose of enabling the Board to proceed with the construction of a public improvement in accordance with a predetermined program and inasmuch as failure to complete the work within the period herein specified will result in a loss to the Board, such provisions are of the essence of this Contract.

Art. 16. EXTENSION OF TIME; NO WAIVER. If the Contractor shall be delayed in the completion of his work by reason of unforeseeable causes beyond his control, and without his fault or negligence, including, but not restricted to, acts of God or of the public enemy, acts or neglect of the Board, acts or neglect of any other contractor, fires, flood, epidemics, quarantine restrictions, strikes, riots, civil commotions or freight embargoes, the period hereinabove specified for completion of his work shall be extended by such time as shall be fixed by the Board. No such extension of time shall be deemed a waiver by the Board of its right to terminate the Contract for abandonment or delay by the Contractor as herein provided or relieve the Contractor from full responsibility for performance of his obligations hereunder.

Art. 17. ADDITIONAL TIME FOR PERFORMANCE. If the said work shall be delayed in consequence of any act or omission of the Board (which shall be determined by the Board, and whose determination and certification thereof shall be binding and conclusive upon the Contractor), the Contractor shall be entitled to such additional time necessary to complete the Contract on his part as the Board, in its judgement, shall deem to be required.

Art. 18. USE; NO WAIVER. Neither the acceptance by the Board or the Engineer, or any of their agents, employees or subordinates, of the whole or any part of the work, nor the connecting to or use of any of the work embraced in this Contract, nor any payment for the work, nor any extension of time, nor any possession taken, by the Board, shall operate as a waiver of any portion of this Contract (except the maintenance period which shall start when continual use begins), or of any power or right herein reserved to the Board or Engineer, or of any right of the Board to damages herein provided, nor shall any waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach.

The Board reserves the right to use in whole or in part any structure or structures, or any part or parts thereof, built hereunder, or in which, or in any part of which, work is performed hereunder, whenever in the opinion of the Engineer any portion of the work is completed or is in an acceptable condition for use. The use of any such portion of the work shall be considered a test or trial and shall not be held in any way a final acceptance of the portion of the work used or a waiver of any portion of these documents, except as hereinbefore provided. The only right, except as hereinbefore provided, that the Contractor shall have due to such acceptance or use, shall be to request an extension of time for completion of this Contract, if such occupancy and use shall delay the completion of the work remaining to be performed.

Art. 19. SUSPENSION OF WORK. The Board reserves the right to suspend the whole or any part of the work herein contracted to be done, if it shall deem it for the best interests of the Board so to do, without compensation to the Contractor for such suspension, except as provided in Art. 56.

Art. 20. MAINTENANCE. During a period of one year subsequent to the date of the acceptance of the work by the Board, or as provided below, the Contractor agrees to replace any material which does not conform to Contract requirements, and to repair any damage of the material or of the work, without cost to the Board to the satisfaction of the Engineer, and in conformity with the Contract Documents, provided that orders for such replacements or repairs are received by him in writing within the one-year period. The Contractor is not obligated thereby to do any work of replacement or repair that he may prove, to the satisfaction of the Engineer, to have resulted from abuse of the work,

or materials by parties other than the Contractor, after the date when the Board puts to use that part of the work requiring replacements or repairs, or approves the Certificate of Completion and accepts the work.

If the Board shall deem it necessary, and shall so order, such replacement or repairs shall be undertaken within 24 hours after service of notice. If the Contractor unnecessarily delays or fails to make the ordered replacements or repairs within the time specified, or if any replacements or repairs are of such nature as not to admit of the delay incident to the service of a notice, then the Board shall have the right to make such replacements or repairs and the expense thereof shall be paid by the Contractor or deducted from any moneys due the Contractor, or from any moneys of the Contractor retained by the Board.

If the Board puts to the use for which it is built or installed, any structure or equipment previous to the acceptance of all work under the Contract, the maintenance period for such structure or equipment shall be calculated from the time when such use begins.

Any seeding required under the Contract shall be done by the Contractor during the maintenance period if it is deemed inexpedient by the Engineer, because of the season, to do seeding prior to the date of "acceptance of the work".

Art. 21. RETAINED PERCENTAGE DURING MAINTENANCE PERIOD. There will be retained without interest by the City during the maintenance period of one year, 2 percent of the final estimate, to insure the maintenance and repair or replacement of the work or materials by the Contractor, as required by the terms of this Contract. A bond by an approved company may be offered and in case of its acceptance, the retained money will be released.

Art. 22. COMPENSATION TO BE PAID TO CONTRACTOR. The Board will pay, and the Contractor shall receive, the prices set forth for each item in the Proposal, in full compensation for:

- (1) Furnishing the security required for the faithful performance of the Contract, and
- (2) Performing and completing all the work which is necessary or proper to be furnished or performed in order to complete the entire work in this Contract described and specified, and in said specifications and drawings described and shown, and
- (3) All loss or damages
  - (a) arising out of the nature of the work aforesaid, or
  - (b) from the action of the elements, or
  - (c) from any unforeseen delays, obstruction, or difficulties encountered in the prosecution of the work, or
  - (d) from any encumbrances on the line of the work, and
- (4) All expense incurred by or in consequence of the suspension or discontinuance of the work as herein specified.



Based on the estimated quantities set forth in the Proposal for Contract 54 and the unit prices and the lump sums therein contained, the estimated contract amount is.....Dollars and .....Cents (\$.....). It is understood and agreed, however, that the Contractor will accept, as payment in full with no allowance for anticipated profit, the summation of:

- (a) the lump sums bid, and
- (b) the products of the quantities, as determined by the Engineer, multiplied by the unit prices bid.

Such summation shall be subject to additions and deductions as herein provided and shall be paid in current funds by the City to the Contractor in installments, on certificate by the Engineer, as hereinafter provided.

Art. 23. CERTIFICATE BY ENGINEER. No payment shall be made without the written certificate of the Engineer to the effect that such payment has become due and payable. At any time during the progress of the work, the Engineer may require the Contractor to furnish him a statement in writing signed by him and under oath that all claims and liabilities for labor and materials have been fully paid, or a statement in writing signed by him and under oath of such claims and liabilities as have not been paid, and no payment shall be due and payable to the Contractor while any such request remains uncomplished. If such statement shall be given showing any such claims or liabilities not fully paid, the Engineer may withhold his certificate that any payment is due the Contractor, if, in the judgement of the Engineer, such action shall be necessary to protect fully the City from loss, damage, or expense.

Art. 24. CLAIMS. If at any time there shall be evidence of any claim for which, if established, the City might become liable, directly or indirectly, and which is chargeable to the Contractor or any of his subcontractors, or if any claims shall be filed under the provisions of Section 29 of Chapter 149 of the Massachusetts General Laws or of any act in amendment thereof or addition thereto for labor performed or furnished or for materials used in the work, the City shall have the right to retain out of any payment then due or thereafter to become due an amount sufficient to indemnify it completely against any such claim and interest and costs thereon. Should there prove to be any such claim after all payments are made, the Contractor shall refund to the City all moneys that the latter may be compelled to pay in discharging any such claim.

Art. 25. CONTRACTOR ENTITLED TO PAYMENT ONLY IN ACCORDANCE WITH CONTRACT. The Contractor shall not demand nor be entitled to receive payment for the work or materials, or any portion thereof, except in the manner set forth in this Contract; nor unless each and every one of the promises, agreements, stipulations, terms, and conditions herein contained to be performed, kept, observed, and fulfilled, on the part of the Contractor, shall have been so set forth, performed, kept, observed, and fulfilled; and the Engineer shall have given his certificate to that effect, and the Board shall have accepted the work.

Art. 26. NO CLAIM FOR BID QUANTITIES. The Contractor admits that the estimated quantities of the several classes of work and kinds of material stated in the Proposal, are only for the purpose of comparing bids offered for the work. The Contractor agrees that neither the City, Board, nor any Commissioner of the Board, is to be held responsible should any of the estimated quantities be found not even approximately correct; and the Contractor shall make no claim for anticipated profits, or for loss of profit, because of the difference

between the quantities of work actually done or materials actually delivered and the estimated quantities stated in the Proposal.

Art. 27. BREAKDOWN STATEMENT. Within ten days of the signing of the Contract, and before orders will be given to begin work, the Contractor shall furnish the Board with duplicate copies of a breakdown statement of his various unit price and lump sum bids in the Proposal, in such detail as will be acceptable to the Engineer. Breakdowns shall be so made as to facilitate monthly estimates on items that will be under construction for several months.

Art. 28. MATERIALS INCLUDED IN PERIODIC ESTIMATES. Allowances for payment to the extent listed herein, for equipment and materials specifically listed on an approved breakdown statement of the unit prices and lump sum bids, may be included in the next periodic estimate after the stages herein have been reached:

- (a) upon completion of delivery, 75 percent of the delivered price shown on the breakdown statement.
- (b) upon completion of erection or installation, 95 percent of the installed price shown in the breakdown statement.
- (c) upon successful completion of acceptance tests, 100 percent of the total price shown in the breakdown statement.

All such equipment and materials included for payment in the periodic estimate shall be and become the property of the Board and, on demand, the Contractor at his own expense shall promptly execute, acknowledge, and deliver or cause to be executed, acknowledged, and delivered to the Board for any and all such equipment and materials included in any periodic estimate, proper bills of sale or other instruments in writing in a form and as required by the Board from the Contractor and from any person, firm, or corporation manufacturing for, or selling or shipping to the Contractor any such equipment and materials, conveying and assuring to the Board title to such material included in such estimate free from all liens and encumbrances; and Contractor at his own expense shall mark such materials as the property of the Board and shall take such other steps, if any, as the Board may require or regard as necessary to vest title in the Board to such equipment and materials free from all liens and encumbrances.

The Contractor shall, however, notwithstanding such transfer of title to the Board, be absolutely responsible to the Board for any loss or damage to such equipment and materials until the same shall have been completely installed and tested, all work under the Contract completed and accepted, and shall at his own cost replace any equipment and materials lost or damaged.

Art. 29. PREPARATION OF ESTIMATES. Preliminary drafts of estimates for periodic payment shall be delivered to the office of the Engineer no later than the fifth day of the month following the period covered by such estimate. After the preliminary drafts have been approved by the Engineer, final drafts of such estimates shall be prepared by the Contractor, and delivered to the office of the Engineer no later than the 10th day of the month following the period covered by such estimate. Classes of work listed on a partial estimate shall be only those approved by the Engineer, and in the quantities so approved. Breakdowns of unit price and lump sum items shall be considered only to the extent, approved by the Engineer, as indicated on daily report sheets, as of the date on which the work was done.

Daily reports shall be prepared by the Contractor on forms supplied by the Engineer. They shall be submitted to the Engineer on or before noon of the day following the day's work reported, properly prepared and signed.

The Contractor shall furnish the Engineer with copies of delivery slips covering all material, delivered to the site, which is to be included in any periodic estimate. All materials delivered to the site whether from a supplier's warehouse or from the Contractor's stock, shall be covered by such delivery slips. Delivery slips shall be submitted daily with the daily report sheets.

Deviation from the above procedure by the Contractor, as to preliminary drafts, daily reports, and delivery slips, shall constitute grounds for disapproval by the Engineer of part or all of the current estimate for partial payments.

Art. 30. PAYMENT. Not later than the last day of each calendar month, the Board will make partial payment to the Contractor on the basis of an estimate of the work performed during the preceding calendar month by the Contractor, and duly approved and certified by the Engineer, which estimate includes the allowances set forth in Art. 28. All such payments shall be considered tentative only, subject to correction in the final estimate, and need not be based on accurate measurement of any character. These payments are to be made purely to aid the Contractor to meet his current bills, and for no other purpose.

The Board will retain 10 percent of the amount of each such estimate until the Contract is half completed, as established by the estimated contract amount in Art. 22. There will be no further retainage. This amount shall be retained by the Board, without interest, until the semi-final payment provided for in Art. 32.

The Contractor shall pay:

- (1) for all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered,
- (2) for all materials, tools, and expendable equipment and supplies to the extent of 90 percent of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools, and equipment are delivered at the site, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools, and equipment are incorporated or used, and
- (3) to each of his subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors, to the extent of each such subcontractor's interest therein.

Failure by the Contractor to defray the charges listed in 1, 2, and 3, shall constitute grounds for disapproval by the Engineer of the current estimate for partial payment.



Art. 31. CERTIFICATE OF COMPLETION. Upon the completion of all work required, except (a) delayed seeding, and (b) maintenance, the Engineer shall file a written certificate, also termed a "final estimate", with the Board and with the Contractor as to the entire amount of work performed and compensation earned by the Contractor including Additional Work and compensation therefor under and according to the terms of the Contract. The Board reserves the right to disregard claims for compensation submitted by the Contractor after the date of the Engineer's certificate. Approval of the certificate of completion by the Board shall constitute "acceptance of the work".

Art. 32. SEMI-FINAL PAYMENT. Within 30 days after the filing of such certificate of completion, the Board shall pay to the Contractor the amount therein stated, less 2 percent retained for maintenance and less all prior payments and advances, whatsoever, to or for the account of the Contractor. All prior estimates and payments shall be subject to correction by this payment, which is throughout this Contract called the semi-final payment. In any event, the semi-final payment will not be released to the Contractor until all known outstanding claims against the Contractor have been satisfied.

Art. 33. ACCEPTANCE OF SEMI-FINAL PAYMENT CONSTITUTES RELEASE. The acceptance by the Contractor of the semi-final payment shall be and shall operate as a release for all things done or furnished in connection with this work and for every act and neglect of the Board and others relating to or arising out of this work. No payment, however, semi-final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this contract or the Performance Bond.

Art. 34. FINAL PAYMENT. One year after the date of acceptance of the work by the Board, (unless a longer interval is established by agreement of the Board and the Contractor) the City will pay to the Contractor the money retained for maintenance, as provided in Art. 21, and any money due the Contractor by reason of delayed seeding. The additional costs of claims and seeding will be shown on a "Revised Final Estimate", which will be accompanied by a "Revised Certificate of Completion". The latter revision will not alter the date of "acceptance of the work".

Final payment, however, will not be released to the Contractor until:

- (1) he presents proof that all claims against the Contractor have been satisfied;
- (2) all delayed seeding done by the Contractor has been accepted by the Engineer.

Art. 35. BOARD'S RIGHT TO WITHHOLD PAYMENTS. The Board may withhold from the Contractor as much of any approved payments due him as may in the opinion of the Board be necessary:

- (a) to assure the payment of just claims of any persons supplying labor or materials for the work then due and unpaid;
- (b) to protect the City from loss due to defective work not remedied; or
- (c) to protect the City from loss due to injury to persons or damage to the work or property of other contractors,

subcontractors, or other parties, caused by the act or neglect of the Contractor or of any of his subcontractors.

The Board shall have the right, as agent for the Contractor, on orders of the Contractor, or with the sanction of a Court having jurisdiction, to apply any such amounts so withheld in such manner as the Board may deem proper to satisfy such claims or to secure such protection. Such application of such monies shall be deemed payments for the account of the Contractor.

Art. 36. LIENS. If at any time before or within 30 days after the whole work herein agreed to be performed, and all the labor and material herein agreed to be performed or delivered, have been performed, or delivered, or completed and accepted by the Board, any person or persons claiming to have performed any labor or furnished any material toward the performance or completion of this Contract shall file with the Board, any such notice as is described by law, the Board shall retain until the discharge thereof, from the moneys under its control, so much of such moneys as shall be sufficient to satisfy and discharge the amount in such notice claimed to be due, together with the costs of any action or actions that may be brought to enforce such lien created by the filing of such notice.

Art. 37. POWERS OF ENGINEER. The Engineer shall make all necessary explanations as to the meaning and intent of the specifications and drawings, shall give all orders and directions contemplated under the Contract, and in every case in which a difficult or unforeseen condition shall arise in the performance of the work required by this Contract, shall determine the adequacy of the Contractor's methods, plant and appurtenances; he shall determine in all cases the amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for; he shall determine all questions in relation to said work and the construction thereof; and he shall decide in all cases every question which may arise relative to the fulfillment of this Contract on the part of the Contractor. His estimate and decision shall be final and conclusive upon said Contractor, subject to review, however, by the Board, upon request of the Contractor, in writing, filed within 10 days of the Engineer's decision.

In case any question shall arise between the parties hereto, touching this Contract, such estimate and decision shall be a condition precedent to the right of the Contractor to receive any money under this Contract. Any differences or conflicts which may arise between the Contractor and other contractors of the Board in regard to their work shall be adjusted and determined by the Engineer.

Art. 38. EXAMINATION OF WORK. The Contractor shall furnish the Engineer on request full facilities for ascertaining that all work is being done strictly in accordance with requirements of the specifications, drawings, and the intent of this Contract, even to the extent of uncovering or taking out portions of the finished work. Should the work exposed or examined prove satisfactory, the uncovering or taking out and replacing of the covering or making good the parts removed, shall be paid for at the Contract unit price for the kind of work done, or in the absence of Contract unit prices, under the provisions of Art. 43, but should the work exposed or examined prove unsatisfactory, the uncovering, taking out, replacing and making good shall be at the expense of the Contractor.

Art. 39. ACCESS TO SITE. The Board and its Engineers, inspectors, agents and other employees shall, for any purpose, have access to the work and the

premises used by the Contractor, and the Contractor shall provide safe and proper facilities therefor, including ladders and scaffolds.

Furthermore, the Board and its Engineers, inspectors and agents shall, at all times, have immediate access to all places of manufacture where materials are being made for use under this Contract, and the Contractor shall provide full facilities for determining that all such materials are being made strictly in accordance with the specifications and drawings.

The Contractor shall, whenever so requested, give the Engineer access to the proper orders for materials, invoices, bills of lading, etc., and shall make all required tests and shall provide scales and assistance for weighing and assistance for measuring any of the materials.

Art. 40. DEFECTIVE WORK AND UNSUITABLE MATERIALS. The inspection of the work by the Engineer, or the Board and its employees, inspectors, or their agents shall not relieve the Contractor of any of his obligations to fulfill his Contract as herein prescribed and defective work shall be made good, and unsuitable materials may be rejected, notwithstanding that such work and materials may have been previously inspected by the Engineer and accepted or estimated for payment.

If the work, or any part thereof, shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good such defect, without compensation, in a manner satisfactory to the Engineer, and if any materials brought upon the site for use in the work, or selected for the same, shall be condemned by the Engineer as unsuitable or not in conformity with the specifications, the Contractor shall forthwith discard such materials and remove them a satisfactory distance from the vicinity of the site.

If the Contractor shall fail or neglect to replace any defective work or to discard condemned materials within ten days after the service by the Engineer of an order to replace such defective work or discard such materials, or to prove to the satisfaction of the Board that he is initiating effective efforts to replace defective materials, the Board may cause such defective work to be replaced or the condemned materials to be discarded, and acceptable materials provided, and the expense thereof shall be deducted from the amount to be paid the Contractor. If during the maintenance period provided for in Art. 20, any work done in accordance with that article shall be found defective before the end of the maintenance period, such defective work shall be made good in same manner as above provided in this article.

Art. 41. MINOR CHANGES IN PLANS. The Board reserves the right to make minor changes in the location, line, grade, plan, form, and dimensions of the work, or any part thereof, either before or after the commencement of construction. Such minor changes shall not warrant any claim for damages on the part of the Contractor through consequent increase or decrease of quantities in any items of the work. If such changes increase the amount of work to be done, the Contractor will be entitled to an extension of time, and to compensation under the various contract items affected, or if mutually agreeable, under the Additional Work clause of the Contract.

Unit price items will not be changed as to price due to a change in quantities, no matter how large or small the change may be.

Art. 42. MODIFICATION OF AGREEMENT. Where conditions require an unforeseen and major change in the plans after the Contract has been signed, the Contractor will undertake to enter into a supplementary contract at agreed prices, to cover the cost of the new construction, and will, if requested, waive any right to do such construction as Additional Work.

Art. 43. ADDITIONAL WORK. The Board may at any time, within the limit of the appropriation of the City Council of the City of Springfield, by a written order, and without notice to the sureties, require the performance of such Additional Work or changes in the work as it may find necessary or desirable. The amount of compensation to be paid to the Contractor for any Additional Work, as so classified and ordered, shall be determined by any of three methods, as approved by the Board, as follows:

- (a) By such applicable unit prices, if any, as are set forth in the Contract; or
- (b) If no such unit prices are set forth, then by unit prices or by a lump sum mutually agreed upon by the Board and the Contractor; or
- (c) If no such unit prices are so set forth and if the parties cannot agree upon unit prices or a lump sum, then the Contractor shall receive the true necessary cost to him, including workmen's compensation, public liability, unemployment, and social security insurance but exclusive of administration, general superintendence and profit, as determined by the Engineer, plus 15 percent of said necessary cost, which said 15 percent shall be considered as covering administration, general superintendence, profit and all other expenses not included in the net cost, and the Engineer's determination and certificate of such cost, when approved by the Board, shall be binding and conclusive on the Contractor, and the Engineer shall be deemed the arbiter to determine the cost of such work.

If any work or materials be ordered under subhead (c) of this article, the Contractor shall at the times directed during the performing of the work or the furnishing of the materials render to the Engineer written reports, in prescribed form, showing the name and number of each workman employed thereon, the number of hours employed thereon, the character of work he is doing and the wages paid or to be paid to him; also showing the materials delivered and any other items that may enter into the cost, the quantity and character of each such material, from whom purchased and the net amount paid or to be paid therefor, and such other information as directed. If required, the Contractor shall produce any books, vouchers, other records or memoranda which will assist the Engineer in determining the true necessary cost of the work and the materials to be paid for. But no such order for work or materials so issued by the Board shall be valid unless first approved and countersigned by the Board.

Art. 44. WORK BY OTHERS. The Board reserves the right to do any work which may connect with, become part of or be adjacent to the work embraced in this Contract, at any time, by contract or otherwise.

The Contractor will not molest, interfere with, nor place any obstructions in the way of such other contractor or other person or persons as the Board may employ and will suspend such part, or all of his work or will prosecute the same in a manner as may be ordered by the Engineer to afford all reasonable facilities for doing such other work. Where contractors cannot agree as to who has precedence in any location, the decision shall rest with the Engineer.

Employees of the Contractor shall not enter upon adjoining property to underpin or protect adjoining structures or for any other purpose whatsoever except with the written permission of the owners or lessees as provided by law.

The Contractor must work in conjunction with the operating staff of the Board, and with all other contractors at the site of the work to be performed, to avoid disputes, to secure rapid progress of the work under this Contract and other contracts, and especially to protect the present structures, and assure no interference with normal operation of the existing water works.

If work under this Contract endangers or interferes with any structure or a part thereof, any equipment or a part thereof, or with a permanent installation of any nature whatsoever, whether any of the foregoing are the work of this Contractor or of other contractors, such dangers and interferences shall be prevented or eliminated by adequate protection or removal; all necessary reconstruction or relocating shall be done as directed by the Engineer unless the Contract Documents specifically exempt the same. Any and all such protection, relocation, and/or construction deemed necessary by the Engineer as required under this Contract shall be at the expense of the Contractor. The Contractor shall have no claim for damages against the City because of action by the Board under this article and his only right shall be to apply for an extension of time for completion.

Should the Contractor sustain any damage through any act or omission of any other contractor having a contract with the Board for the performance of any work upon or at the site of the work to be performed hereunder or of any work which may be necessary to be performed for the proper prosecution of the work to be performed hereunder; or through any act or omission of a subcontractor of such a contractor, this Contractor shall have no claim against the City for such damage, but shall have a right to recover such damage from the other contractor.

Should any other contractor having or who shall hereafter have a contract with the Board for performance of work upon or at site to be performed hereunder or of any work which may be necessary to be performed for the proper prosecution of the work to be performed hereunder, sustain any damage through any act or omission of the Contractor hereunder or through any act or omission of any subcontractor of the Contractor, the Contractor agrees to reimburse such other contractor for all such damages and indemnify and hold the Board harmless for all such claims.

Art. 45. PROTECTION OF WORK AND PROPERTY. The Contractor shall continuously and adequately protect the work to be performed under this Contract against damage and will protect and safeguard all materials furnished by him,

whether or not incorporated in the work, against damage from any cause, and shall make good any such damage unless it be due directly to errors in the Contract Documents or be caused by agents or employees of the Board. To the extent required by law, by public authority or by local conditions, the Contractor shall adequately protect adjacent property and shall provide and maintain all passageways, guard fences, lights and other facilities for protection.

Art. 46. CONTRACTOR'S CLAIM FOR DAMAGE. If the Contractor shall claim compensation for any damage sustained by reason of the acts of the Board, or its agents, he shall, within five days after the sustaining of such damage, make a written statement to the Engineer of the nature of the damage sustained. On or before the 15th day of the month succeeding that in which any such damage shall have been sustained, the Contractor shall file with the Engineer an itemized statement of the details and amount of such damage, and unless such statement shall be made as thus required, his claim for compensation shall be forfeited and invalidated, and he shall not be entitled to payment on account of any such damage.

In addition to the foregoing statements, the Contractor shall upon notice from the Board, produce for examination by the representatives of the Board, all his books of accounts, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks showing all of his acts and transactions in connection with or relating to or arising by reason of this Contract, and submit himself and persons in his employ for examination under oath by any person designated by the Board to investigate claims made against the Board. Unless the aforesaid statements shall be made and filed within the time aforesaid and the aforesaid records submitted for examination, and the Contractor and his employees submit themselves for examination as aforesaid, the Board shall be released from all claims arising under, relating to or by reason of this Contract, except for the sums certified by the Board to be due under the provisions of this Contract.

Art. 47. ACCIDENTS. The Contractor, during the performance of the work, shall take all necessary precautions and place proper guards for the prevention of accidents, shall put up and keep suitable and sufficient lights and other signals, and shall indemnify and save harmless the City and its officers and agents, from all damages and costs to which they may be put by reason of injury to the person or property of another resulting from his negligence or carelessness in the performance of the work, or in safeguarding the same, or from any improper materials, implements or appliances used in its construction, or by or on account of any act or omission of the Contractor or his agents. The whole, or so much of the moneys due under and by virtue of the Contract as shall be considered necessary by the Board may, at its option, be retained by the Board until all suits or claims for damages as aforesaid shall have been settled and evidence to that effect furnished to the Satisfaction of the Board.

Art. 48. LIABILITY OF CONTRACTOR IS ABSOLUTE. The liability of the Contractor hereunder for all injuries to persons or damages to property is absolute and is not dependent upon any question of negligence on his part or on the part of his agents, servants or employees and neither the approval of the Engineer of the methods of doing work nor the failure of the Engineer to call the attention to improper or inadequate methods, or to require a change in the methods, nor the neglect of the Engineer to direct the Contractor to take any particular precautions or to refrain from doing any particular thing, shall excuse the Contractor in case of any injury to persons or damages to property.



Art. 49. RIGHT OF PROPERTY IN MATERIALS. Nothing in this Contract shall be considered as vesting in the Contractor any right of property in materials used, after they shall have been attached or affixed to the work or the soil, nor in materials which have been accepted for partial payment as provided in Art. 28, but all such materials shall upon being so attached or affixed, or so accepted, become the property of the City.

Art. 50. LAWS, ORDINANCES, AND REGULATIONS. The Contractor shall be required to observe all municipal ordinances, county resolutions, and commonwealth laws in relation to obstructing streets and highways, removing and replacing highway surfaces, sidewalks, curbs and gutters, maintaining signals, storing, handling and use of explosives, and all general statutes affecting him or his employees or his work hereunder in his relations to the municipalities, or any other persons, and also obey all ordinances, resolutions or laws, controlling or limiting the Contractor while engaged in the prosecution of work under this Contract.

The Contractor hereby agrees to comply with all legal provisions, and agrees that upon his failure to comply with these provisions this Contract shall be voidable at the instance of the Board.

The Contractor's attention is also, specifically called to Chapter 461 of the Acts of 1935 of the Commonwealth of Massachusetts and amendments thereof, which requires that the Contractor pay his laborer and mechanics a minimum rate of wages. The Contractor further agrees that, in the event any dispute arises as to what are the minimum rates of wages applicable to the Contract, which are not established, the matter shall be referred to the Commonwealth Department of Labor and Industries, for determination and that its decision shall be conclusive on all parties to this Contract.

The Contractor hereby agrees that in the employment of mechanics, engineers, teamsters, laborers and workmen in the construction of the work under this Contract preference shall be given (1) to citizens of the City who have served in the Armed Forces of the United States in time of war and have been honorably discharged therefrom or released from active duty therein, and who are qualified to perform the work to which the employment relates; (2) to citizens of the City generally; (3) to citizens of the Commonwealth who have served as aforesaid in the Armed Forces of the United States and have been discharged or released and are qualified; (4) to citizens of the Commonwealth generally; and (5) if they cannot be obtained in sufficient numbers, then to citizens of the United States.

There shall be paid to each employee engaged in work on the project under this Contract, in the trade or occupation listed below, not less than the hourly wage shown, in accordance with the Minimum Wage Rates and Health and Welfare Fund Contributions as determined by the Commissioner under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27 D, inclusive:

Sect. 26. Payments by employers to health and welfare and pension plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.

Sec. 27. The rates of wages in the schedule of wage rates shall include payments by employers to health and welfare plans as provided in the previous section, and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in

the construction of such works who does not make payments to a health and welfare plan, where such payments are included in said rates of wages, shall pay the amount of said payments directly to each employee engaged in said construction.

Classifications	Current	Contrib.	Total	Changes:			
	Hourly Rate	H & W&P Funds	Hourly Rate	Hourly Rate		H & W&P Funds	Total Rate
<u>AFTER:</u>							
Master Mechanic	3.90	3% +.10	4.12	4/1/62	3.975	3% +.15	4.24
				4/1/63	4.05	3% +.20	4.37
Maintenance Eng.	3.35	3% +.10	3.55	4/1/62	3.425	3% +.15	3.675
				4/1/63	3.50	3% +.20	3.81
Asst. Engineer:							
Steam Machines	3.35	3% +.10	3.55	4/1/62	3.425	3% +.15	3.675
				4/1/63	3.50	3% +.20	3.81
Other Machines	2.60	3% +.10	2.78	4/1/62	2.675	3% +.15	2.90
				4/1/63	2.75	3% +.20	3.03
Crane, Shovel Oper.	3.80	3% +.10	4.01	4/1/62	3.875	3% +.15	4.14
				4/1/63	3.95	3% +.20	4.27
Trenching Mach. Oper.	3.80	3% +.10	4.01	4/1/62	3.875	3% +.15	4.14
				4/1/63	3.95	3% +.20	4.27
Tractor, Bulldoz. Oper.	3.35	3% +.10	3.55	4/1/62	3.425	3% +.15	3.675
				4/1/63	3.50	3% +.20	3.81
Grader Operator	3.35	3% +.10	3.55	4/1/62	3.425	3% +.15	3.675
				4/1/63	3.50	3% +.20	3.81
Bitum. Concr. Spr. Oper.	3.35	3% +.10	3.55	4/1/62	3.425	3% +.15	3.675
				4/1/63	3.50	3% +.20	3.81
Front End Loader:							
4 yds. or over	3.55	3% +.10	3.76	4/1/62	3.625	3% +.15	3.885
				4/1/63	3.70	3% +.20	4.01
Compressor Operator:							
315 cu.ft. or less	2.60	3% +.10	2.78	4/1/62	2.675	3% +.15	2.90
				4/1/63	2.75	3% +.20	3.03
Over 315 cu. ft.	3.125	3% +.10	3.32	4/1/62	3.20	3% +.15	3.45
				4/1/63	3.275	3% +.20	3.57
Roller Operator	3.125	3% +.10	3.32	4/1/62	3.20	3% +.15	3.45
				4/1/63	3.275	3% +.20	3.57
Concrete Mixer Oper.:							
1 bag	2.60	3% +.10	2.78	4/1/62	2.675	3% +.15	2.90
				4/1/63	2.75	3% +.20	3.03
2 bags or more	3.20	3% +.10	3.40	4/1/62	3.275	3% +.15	3.525
				4/1/63	3.35	3% +.20	3.65
Pumpman	3.125	3% +.10	3.32	4/1/62	3.20	3% +.15	3.45
				4/1/63	3.275	3% +.20	3.57



Classifications	Current Hourly Rate	Contrib. H & W&P Funds	Total Hourly Rate	Hourly Rate	Changes	H & W&P Funds	Total Rate
<u>AFTER:</u>							
Other Power Driv.Eq.	3.20	3% +.10	3.40	4/1/62 4/1/63	3.275 3.35	3% +.15 3% +.20	3.525 3.65
Bricklayer	3.875	.12	3.995	1/1/62	3.925	.12	4.045
Cement Finisher	3.875	.12	3.995	1/1/62	3.925	.12	4.045
Stone Mason	3.875	.12	3.995	1/1/62	3.925	.12	4.045
Jack Hammer Oper.	2.70	.10	2.80				
Mason Tender	2.70	.10	2.80				
Catch Basin-Mnh.Bldr.	3.875	.12	3.995	1/1/62	3.925	.12	4.045
Carpenter	3.58	.11	3.69	4/1/62	3.705	.11	3.815
Pile Drv-Coffer Bldr.	3.85	.10	3.95				
Iron Worker	4.27	.20	4.47				
Painter	3.30	.10	3.40				
Blaster	2.95	.10	3.05				
Truck Driver	2.795	.23	3.025				
Euclid Operator	3.05	.23	3.28				
Oper. 3 axle equip.	2.85	.23	3.08				
Pipe Layer	2.45	.10	2.55				
Stone Spreader	2.45	.10	2.55				
Asphalt Raker	2.45	.10	2.55				
Curb Setter	3.20	.10	3.30				
Common Laborer	2.45	.10	2.55				
Electrician	3.90	.19	4.09				
Granite Cutter	3.80						
Water Boy	1.00						

Art. 51. INSURANCE. The Contractor shall not commence work under the Contract until he has obtained all insurance required under this article, and such insurance has been approved by the Board, nor shall the Contractor allow

any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been so obtained and approved. Certificates of such insurance shall be filed with the City and shall be subject to the approval of the Board for adequacy of protection.

All policies relating to this Contract shall be so written that the Board shall be notified of cancellation or change at least 10 days prior to the effective date of such cancellation or change.

Two copies of each insurance policy shall be filed one with the Board and one with the Engineer. Renewal certificates covering the renewal of all policies expiring during the life of the Contract shall be filed with the Board not less than 10 days before the expiration of such policies.

The Contractor shall take out and maintain during the life of this Contract such Bodily Injury and Property Damage Insurance as will protect him, the Board, the City and any subcontractor performing work covered by this Contract, from claims for damages for personal injury, including accidental or wrongful death, as well as claims for property damages, which may arise from operations under this Contract whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by either of them and the amounts of such insurance shall be as follows:

- (A) Bodily Injury Liability. For liability for bodily injury including accidental or wrongful death, \$200,000 for any one person and, subject to the same limit for each person, \$500,000 on account of one accident.
- (B) Property Damage Liability. For liability for property damage, \$200,000 on account of any one accident and \$500,000 on account of all accidents.

Insurance policies shall provide for reinstatement of full coverage after payment of any claim.

The following types of insurance shall be provided:

(a) Workmen's Compensation Insurance. The Contractor shall take out and maintain during the life of this Contract, Workmen's Compensation Insurance for all of his employees, employed at the site, and, in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation Insurance for all employees of the latter unless such employees are covered by the protection afforded by the Contractor.

(b) Contractor's Bodily Injury Insurance. Liability for Contractor's Bodily Injury Insurance shall be in the amounts specified in (A) hereinbefore.

(c) Contractor's Protective Bodily Injury Insurance. Liability for Contractor's Protective Bodily Injury Insurance shall be in the amounts specified in (A) hereinbefore.

(d) Contractor's Contractual Bodily Injury Insurance. Liability for Contractor's Contractual Bodily Injury Insurance shall be in the amounts specified in (A) hereinbefore.

(e) Contractor's Property Damage Insurance. Liability for Contractor's Property Damage Insurance shall be in the amounts specified in (B) hereinbefore.

(f) Contractor's Protective Property Damage Insurance. Liability for Contractor's Protective Property Damage Insurance shall be in the amounts specified in (B) hereinbefore.

(g) Contractor's Contractual Property Damage Insurance. Liability for Contractor's Contractual Property Damage Insurance shall be in the amounts specified in (B) hereinbefore.

(h) Motor Vehicle Liability Insurance.

(1) Bodily Injury Insurance covering the operation of all motor vehicles owned by the Contractor, or used by the Contractor in the prosecution of the work under the Contract, shall be in the amounts specified in (A) hereinbefore.

(2) Property Damage Insurance covering the operation of all motor vehicles owned by the Contractor, or used by the Contractor in the prosecution of the work under the Contract, shall be in the amounts specified in (B) hereinbefore.

(g) Blasting Liability Insurance. Bodily injury and property damage arising out of blasting or explosion shall be in the amounts specified in (A) and (B) hereinbefore.

Art. 52. CHATTEL MORTGAGES. No materials or supplies for the work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work.

Art. 53. PATENT RIGHTS. As part of his obligations hereunder and without any additional compensation, the Contractor will pay for all patent fees or royalties, required in respect of the work or any part thereof on any material or equipment installed or process used and will fully indemnify the City for any loss on account of infringement of any patent rights.

Art. 54. DAMAGES TO BE PAID THE CITY. The Contractor shall pay to the City all expenses, losses and damages, as determined by the Engineer, incurred in consequence of any defect, act, omission, or delay, or mistake of the Contractor or his employees, or the making good thereof. In calculating losses, there shall be included all costs of engineering field work and inspections between the completion date specified and the actual completion of the Contract regardless of whether or not an extension of time may be approved.

The Contractor shall pay to the City \$100.00 as liquidated damages for each proven instance of flagrant disregard of the orders of the Engineer.

The Contractor shall also pay for each and every consecutive calendar day beyond the 500 days stipulated in Art. 12 that he shall be in default in completing the whole work to be done under this Contract, except the

maintenance provided for in Art. 20, the sum of \$100.00 per day, which sum is hereby agreed upon, not as a penalty, but as liquidated damages, which the City will suffer by reason of such default.

The Board shall have the right to deduct the amount of any such damage from any moneys due or to become due the Contractor under this Contract; provided, however, that the Board shall have the right in its discretion to extend the time for the completion of the work beyond the time stated in this Contract. If the time for the completion of the work as aforesaid shall be extended by the Board, then and in such case the Board shall be fully authorized and empowered to deduct from any moneys due or to become due the Contractor under the provisions of this Contract, the amount of any damages determined as hereinbefore stipulated for each day that the Contractor shall default for the completion of the work, beyond the date to which the time for said completion shall have been extended by the Board, as provided in Art. 16.

The Contractor shall notify the Board in writing of any delays beyond his control, and request an extension of time to cover such delays. Unless such notice is given obligating the Contractor to continue and finish the work, or any part of it, after the time fixed for its completion, or after the date to which the time for completion may have been extended, shall in no wise operate as a waiver on the part of the Board of any of its rights under this Contract.

Art. 55. BOARD'S RIGHT TO STOP WORK OR TERMINATE CONTRACT. The Contractor further agrees that if;

- (a) the work to be done under this Contract shall be abandoned, or
- (b) the Contractor shall be adjudged bankrupt or make an assignment for the benefit of creditors, or
- (c) a receiver or liquidator shall be appointed for the Contractor or for any of his property and shall not be dismissed within 20 days after such appointment, or the proceedings in connection therewith shall not be dismissed within 20 days after such appointment, or the proceedings in connection therewith shall not be stayed, on appeal within the said 20 days, or
- (d) The Contractor shall refuse or fail, after notice from the Engineer, to supply enough properly skilled workmen or proper materials, or
- (e) the Contractor shall refuse or fail to prosecute the work or any part thereof with such diligence and on good faith, as will insure its completion within the period herein specified (or any duly authorized extension thereof), or shall fail to complete the work within said period, or
- (f) the Contractor shall fail to make prompt payment to persons supplying labor or materials for the work, or
- (g) the Contractor shall subcontract the work otherwise than as herein specified, or



- (h) the Contractor shall fail or refuse to regard laws, ordinances or the instructions of the Engineer, or otherwise be guilty of a substantial violation of any provision of this Contract,

then, and in any such event, the Board, without prejudice to any other rights or remedy it may have, may by 7 days' notice to the Contractor and his sureties, terminate the employment of the Contractor and -his right to proceed, either as to the entire work or (at the option of the Board) as to any portion thereof in which delay shall have occurred, and may take possession of the work and complete the work by Contract or otherwise, as the Board may deem expedient.

In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the compensation to be paid the Contractor hereunder shall exceed the expense of so completing the work (including compensation for additional managerial, administrative, and inspection services, and any damages for delay) such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor and his sureties shall be liable to the Board for such excess. If the right of the Contractor to proceed with the work is so terminated, the Board may take possession of and utilize in completing the work such materials as may be on the site and necessary therefor. If the Board does not so terminate the right of the Contractor to proceed, the Contractor shall continue the work.

Art. 56. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT. If the work as a whole shall be stopped by order of the Court or any other public authority, for a period of three months without act or fault of the Contractor, or of any of his agents, servants, employees or subcontractors, the Contractor may, upon 7 days' notice to the Board, discontinue his performance of the work and/or terminate the Contract, in which event the liability of the Board to the Contractor shall be determined as provided in the paragraphs immediately preceding, except that the Contractor shall not be obligated to pay to the Board any excess of the expense of completing the work over the unpaid balance of the compensation to be paid the Contractor hereunder. The Contractor shall be reimbursed for expenses incurred during delays for which he is not responsible pursuant to the provisions of Art. 46.

Art. 57. POWER OF CONTRACTOR TO ACT IN AN EMERGENCY. In an emergency threatening injury to persons or damage to the work or any adjoining property, the Contractor may act, to prevent such threatened injury or damage, and will so act if instructed or authorized by the Engineer. The amount of reimbursement merited by the Contractor on account of any such action shall be determined by the Engineer, in accordance with the provisions of Art. 43, but subject, as a priority, to an available appropriation made by the City Council of the City of Springfield.

Art. 58. BOARD MAY REQUIRE SUBSTITUTE BOND. If at any time, the Board shall be or become dissatisfied with any surety or sureties then upon the Performance Bond, or if for any other reason such bond shall cease to be adequate security to the Board, the Contractor shall, within 5 days after notice from the Board so to do, substitute an acceptable bond in such form and sum and signed by such other sureties as may be satisfactory to the Board. The premium on such bond shall be paid by the Contractor. No further payment shall be deemed due nor shall be made until the new sureties shall have qualified.

Art. 59. COMPLIANCE WITH LAW. The Contractor agrees to comply in all respects, not only with the terms of this Contract, but with every provision of law pertaining to the performance of work by a Contractor in the construction of water works or other public works.

Each and every provision of the law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

Art. 60. UNLAWFUL PROVISIONS. If this Contract contains any unlawful provisions not an essential part of the general structure of the Contract and which shall not appear to have been a controlling or material inducement in the making thereof, the same shall be deemed of no effect and shall be deemed stricken from the Contract without affecting the binding force of the remainder. It is the intent and understanding of the parties to this Contract, and it is hereby so stipulated that each and every provision of law required to be inserted in this Contract is deemed to be inserted herein and if any such provision is not inserted or is not inserted in correct form, then this Contract shall be deemed amended by such insertion.

IN WITNESS WHEREOF the City of Springfield has caused its corporate seal to be hereto affixed and these presents to be signed in its name and behalf by \_\_\_\_\_ Mayor, and by its Board of Water Commissioners and by the said \_\_\_\_\_ the day and year first above written.

CITY OF SPRINGFIELD

By \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Witness:

\_\_\_\_\_

Approved as to appropriation:

\_\_\_\_\_  
 City Auditor

In proper form and properly executed:

\_\_\_\_\_  
 City Solicitor

PERFORMANCE BOND

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we \_\_\_\_\_

\_\_\_\_\_ as principal, and the \_\_\_\_\_

\_\_\_\_\_ a corporation duly established by law and having a usual place of business at \_\_\_\_\_

in the \_\_\_\_\_, which corporation has complied with all the provisions of law relative to transacting the business of a guaranty, fidelity and surety company in the Commonwealth of Massachusetts, and is duly authorized to transact all such business in said Springfield, as surety, are holden and stand firmly bound and obliged unto the city of Springfield, a municipal corporation within said Commonwealth of Massachusetts, in the full

and just sum of \_\_\_\_\_

\_\_\_\_\_ dollars, to be paid to the City of Springfield, its successors and assigns, to the payment of which, well and truly to be made, said principal bind \_\_\_\_\_ and \_\_\_\_\_ heirs, executors and administrators, successors and assigns, and the said surety binds itself and its successors, jointly and severally, firmly by these presents.

Dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year of our Lord one thousand nine hundred and \_\_\_\_\_

The condition of this obligation is such that whereas the said principal has or principals have entered into a Contract with the City of Springfield, bearing date the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, to which this bond is annexed.

Now, therefore, in case of a breach of any of the agreements in said written Contract, or in any alterations thereof or additions thereto, to be observed by the principal they (the said principal and surety hereto) jointly and severally agree to pay the said City any difference between the sum to which the said principal would be entitled on the completion of the Contract, as so altered or added to, and that which the city may be obliged to pay for the completion of the work by Contract or otherwise, and any damage, direct or indirect, or consequential, which the City may sustain on account of such work or on account of the failure of the principal to properly and in all respects keep and perform all the provisions of the Contract as so altered or added to. And the surety further binds itself that if said principal shall fail to begin work promptly after the date of these presents, or shall fail to cause the same to progress to the satisfaction of \_\_\_\_\_ the representative of the City for this work, then, within ten days from the receipt of a written notice thereof from said representative of



the City to the surety, it will comply with the terms, provisions and conditions of said Contract, as so altered or added to, and fully and faithfully perform the same.

And the said principal and surety hereby further bind themselves, their successors, heirs, executors, and administrators, jointly and severally, that they will amply and fully protect the City against, and will pay, any and all amount, damages, costs and judgments which may be recovered against the City or which the City may be called upon to pay, to any person or corporation by reason of any damages arising out of the doing of said work, or of the repair or maintenance thereof, or the manner of doing the same or the neglect of the said principal, or agents or servants, or the improper performance of the said work by the principal, or agents or servants, or the infringement of any patents, or patent rights by reason of the use of any materials furnished or work done as aforesaid or otherwise.

And the said principal and surety hereby further bind themselves, their successors, heirs, executors, and administrators, jointly and severally, for payment by the Contractor and subcontractors for labor performed or furnished and materials used or employed in the construction of this work and for such further items for which a security bond is required or liability incurred under sections 28 and 29 of Chapter 149 of the General Laws of Massachusetts.

And the surety hereby stipulates and agrees that no change, extension, alteration or addition to the terms of the Contract or specifications shall in any wise affect its obligations to this bond.

IN WITNESS WHEREOF, the said \_\_\_\_\_

\_\_\_\_\_ and the said \_\_\_\_\_

has caused its corporate seal to be hereto affixed and this instrument to be executed and delivered in its name and behalf by \_\_\_\_\_

\_\_\_\_\_ its \_\_\_\_\_

and \_\_\_\_\_ its \_\_\_\_\_,  
hereto duly authorized.

In proper form and properly executed \_\_\_\_\_

\_\_\_\_\_ City Solicitor

Approved:

\_\_\_\_\_

\_\_\_\_\_ Mayor

GENERAL PROVISIONS

## GENERAL PROVISIONS

Sect. G 1 SUBDIVISION OF SPECIFICATIONS. The specifications for the Contract are divided into three major subdivisions:

(a) General Provisions - which cover the general requirements for all work under the Contract.

(b) General Specifications - which cover the detailed requirements for particular types of work and materials under the Contract.

(c) Contract Items - which cover the specific provisions for work and materials under the Contract, modify and complement the General Provisions and General Specifications, provide specific requirements for particular items, and define measurements and the methods of payments. The Contract Items will always govern where there appears to be a lack of agreement between the General Provisions, General Specifications, and Contract Items.

Sect. G 2 COMPLYING WITH GENERAL PROVISIONS. The terms of the General Provisions are applicable to all of the work under the Contract and shall be complied with by the Contractor, unless specific exceptions are provided in the Contract Items.

Unless otherwise expressly stated in the Contract Items, compensation for complying with the requirements of the General Provisions is deemed to be included in the prices bid for the various items in the Proposal.

Sect. G 3 GENERAL SPECIFICATIONS AND CONTRACT ITEMS. The General Specifications and the Contract Items are complementary and the Contractor shall be held responsible for adhering to the applicable provisions of the General Specifications whether or not reference is made thereto in any Contract Item.

Sect. G 4 STANDARDS. Wherever reference is made in the Contract Documents to the standard of any technical society or other recognized organization, these shall be construed to mean the latest standard adopted and published at the date of advertisement for bids.

The following abbreviations are used throughout the specifications to refer to organizations publishing specifications that are widely accepted as standards:

- AASHO - American Association of State Highway Officials
- ACI - American Concrete Institute
- AIEE - American Institute of Electrical Engineers
- AISC - American Institute of Steel Construction
- ASA - American Standards Association
- ASTM - American Society for Testing and Materials
- AWPA - American Wood-Preservers' Association
- AWS - American Welding Society
- AWWA - American Water Works Association
- SSPC - Steel Structures Painting Council

Sect. G 5 OPERATIONS MAINTAINED. It is essential to the public health that the operation of the Filter Plant be maintained. The Contractor will be required to work in close cooperation and coordination with the Board and its duly authorized agents to assure that a minimum of interruptions of operations

and nuisances result from his procedures. Only such interruptions of operations as are approved by the Engineer will be permitted.

Section G 6 LINES AND GRADES. All work shall be constructed according to the lines and grades shown and approved. All original lines and grades will be given by the Engineer, but the Contractor shall provide such materials and give such assistance as may be required, and will be held responsible for the preservation of stakes, benchmarks, or survey monuments, until authorized to remove them. The Contractor will be furnished with an original base line and bench marks, and he will be held responsible for the correct extensions of measurements from such data, and the correctness of the work thereon.

The Contractor shall provide reasonable and necessary opportunities and facilities for setting points and taking measurements, Whenever the Board finds it necessary to carry on his operations on Sundays, legal holidays, or at other times when the work of the Contractor is not in progress, the Contractor shall furnish all necessary service and assistance. He shall not proceed until he has made timely demand upon the Board for, and has received from it, such points and instructions as may be necessary for the progress of the work. Any work improperly done without lines or levels or instructions shall be removed and replaced by the Contractor at his own expense.

No direct payment will be made for the cost to the Contractor of any of the work or delay occasioned by giving lines and grades, or making other necessary measurements, or by inspection, compensation therefor being considered as having been included in the bid prices.

Section G 7 CONSTRUCTION PHOTOGRAPHS. The Contractor shall furnish a series of construction photographs, taken by a professional photographer, to show the progress of the work. Photographs shall be taken at such times and at such locations as may be determined by the Engineer. Six photographs shall be taken each month at regular intervals while the work is in progress. One glossy print of each picture taken during the month shall be submitted to the Engineer at the time of the monthly estimate; and one glossy print of each picture shall be submitted directly to the board. Prints for submission shall not be less than 8 in. by 10 in. in size, mounted on cloth, with a flap for binding, properly identified by text and dates on the reverse side. Negatives of all photographs, including identification shall be furnished to the Engineer.

Section G 8 DRAWINGS AND SPECIFICATIONS FURNISHED TO CONTRACTOR. The Contractor will be furnished with six blue prints or white prints on paper, as desired, of each of the numbered drawings and a title sheet, and six sets of specifications. Additional prints and specifications will be furnished the Contractor upon application, at cost of reproduction.

Where a revision of a drawing becomes necessary, six copies of only the revised drawing will be furnished to the Contractor for inclusion with the previously issued drawings.

Supplementary drawings will be issued by the Engineer to the Contractor from time to time, where the Contract Drawings require supplementing, to explain the work more fully or to show changes which have been ordered by the Board. Six blue prints or white prints on paper, as desired, of each supplementary drawing will be furnished to the Contractor. These supplementary drawings shall have the same force and effect as any other Contract Document.

The Contractor is required to check all dimensions and quantities on the drawings or schedules given to him by the Engineer, and shall notify the Engineer of all errors therein which he may discover by such examination and checking. The Contractor will not be allowed any extra payment for work he alleges to be due to any error or omission in these specifications, nor in the drawings or schedules, as full directions will be furnished by the Engineer should such error or omission be discovered, and the Contractor shall carry out such instructions as if originally specified.

Section G 9 WORKING DRAWINGS AND PRINTED MATTER FURNISHED BY THE CONTRACTOR

The Contractor shall submit for approval, working drawings and descriptions of all material and equipment which he is to furnish, such as steel reinforcement, structural details, layout and support of pipe, sheeting and bracing, wiring, and details of supporting and relocating utilities or other adjacent structures, if he intends to deviate from the details shown or if the details are not shown. The Contractor, on approval from the Engineer, may submit manufacturers' literature as a substitute for, or supplement to, the working drawings. The minimum size for any submission shall be  $8\frac{1}{2}$  in. by 11 in. All drawings and printed matter submitted shall clearly indicate the section of the Contract Items to which they correspond (i.e. Sect. 9.2).

Drawings or printed matter shall give all dimensions and sizes to enable the Engineer to pass on the suitability of the material or layout for the purpose intended. The working drawings shall, where needed for clarity, include outline and sectional views, and detailed working dimensions and designations of the kind of materials and the kinds of machine work and finishes required. Drawings for submission shall be coordinated by the Contractor with the drawings heretofore approved, and with the design and function of any equipment or structure.

Material shall not be purchased or fabricated for equipment or structures until the Engineer has reviewed the working drawings, which shall represent all materials and work involved in the construction. No materials or equipment shall be delivered to the site until the working drawings have been approved.

Work shall not be done upon any part of a structure, the design of construction, of which is dependent upon the design of equipment or other features, for which approval is required, until such approval has been received from the Engineer.

Four copies of drawings and printed matter shall be submitted to the Engineer for review. After such drawings have been marked "approved" by the Engineer, the Contractor shall furnish the Engineer with four blue prints on paper of each approved drawing, and four copies of approved manufacturer's printed literature. Only drawings which have been checked and corrected by the material fabricator shall be submitted. The Contractor shall be responsible for the prompt submission of all working drawings, so that there will be no delay to the work due to the absence of such drawings.

Any approval by the Engineer of such working drawings, manufacturer's literature, or other data relative to the work or material to be furnished for the Contract shall not be construed as in any way relieving the Contractor from his full responsibilities under the terms of the Contract, but shall be interpreted only to mean that an examination of the exhibits has been made, that no variation from the Contract requirements has been discovered and that no criticism is offered.



Section G 10 PERMITS. The Contractor shall obtain and pay for all permits required for the prosecution of the work under the Contract. He shall pay all charges and expenses and shall furnish all bonds and insurance stipulated in the permits, and shall indemnify and save harmless the Board from all claims for damage and any actions that may arise thereunder.

Section G 11 LAND FOR THE CONTRACTOR'S USE. Land and easements for the purpose of this Contract will be provided by the Board. If the Contractor desires the temporary use, during construction, of land or lands to which the Board has no rights, he shall secure written permission from the owners and shall file a duplicate copy of such permission with the Engineer. Land shall not be used or occupied by the Contractor prior to the securing of permission. The Contractor shall at all times save harmless the Board from actions by third parties by reason of any acts or omissions by the Contractor.

Before the final acceptance of the work, and as a prerequisite to the release of the semi-final payment, the Contractor shall secure a written release from the authorities having jurisdiction over utility structures certifying to the satisfactory restoration of all utility structures removed or safeguarded for the work.

The Contractor shall confine his materials and their storage, and the operations of his workmen to limits indicated by laws, ordinances, permits, or directions of the Engineer, and will not unreasonably encumber the premises with such materials, but shall store them in orderly fashion, so that they will not interfere with the work under this or other contracts.

Section G 12 SAFEGUARDING PROPERTY. The Contractor shall protect trees, shrubs, and grassed areas on the lands of the Board, and on adjacent lands, from being cut, trimmed, or injured, unless specifically ordered otherwise for clearing the site. Any damage to trees, shrubs, or grassed areas shall be made good by the Contractor, at his own expense, to the satisfaction of the owners thereof. The Contractor shall restore all areas to their original condition as determined by the Engineer, at the Contractors expense, except as otherwise shown, specified, or required.

When any monument, whether of stone or concrete or a mark on the pavement, designating the lines of the streets, highways, water mains and fittings thereon, or of private property, is in the line of any construction work and may have to be removed, the Contractor shall notify the Engineer in writing at least 24 hours in advance. Under no circumstances shall such monument be removed or disturbed by the Contractor or by any of his men without a written order from the Engineer. The Contractor shall furnish the necessary labor which may be required in resetting any monument, under the direct supervision of the Engineer. Should any monument be destroyed through accident or neglect, the Contractor shall be required, at his own expense, to employ a surveyor acceptable to the Engineer, to reestablish the monument.

Section G 13 SAFETY PRECAUTIONS. To the extent required by law, public authority, or local conditions, the Contractor shall adequately protect traffic and adjacent property, and shall provide and maintain all passageways, guard fences, lights, and other facilities for protection. The Contractor shall not load or permit any part of the work to be loaded with a weight that will endanger its safety or unduly affect the structure or any part thereof. The Contractor shall enforce the instructions of the Engineer regarding signs, advertisements, fires, and smoking.

The Contractor will not be permitted to place any materials or equipment on, or move vehicles over the tops of existing filters.

If at any time, in the opinion of the Engineer, the work is not properly lighted, barricaded, and in all respects safe in respect to public travel, persons on or about the work, or public or private property, the Engineer shall have the right to order such safeguards to be erected and such precautions to be taken as he deems necessary and the Contractor shall comply with such orders. If, under such circumstances, the Contractor does not or cannot immediately put the same into proper and approved condition or if the Contractor or his representative is not upon the site so that he can be immediately notified of the insufficiency of safety precautions, then the Engineer may put the work into such a condition that it shall be, in his opinion, in all respects safe, and the Contractor shall pay all expenses of such labor and materials as may have been used for this purpose by him or by the Engineer. Such action of the Engineer, or his failure to take such action, shall in no way relieve the Contractor of the entire responsibility for any cost, loss, or damage by any party sustained on account of the insufficiency of the safety precautions taken by him or by the Engineer acting under authority of this section.

All explosives for blasting shall be transported, stored, handled, and used in accordance with the Rules and Regulations (Form FPR-12) of the Department of Public Safety of the Commonwealth of Massachusetts, and with all other state and local laws, regulations, and ordinances. Blasting shall be conducted so as not to endanger persons or property and shall be covered and confined in an approved manner. The quantity of explosives kept on hand shall not exceed the amount that is necessary to avoid delay to the work. The composition of explosives shall be such as to cause the least amount of injurious fumes. Particular care shall be exercised to prevent injury to the existing water pipes, gas mains, sewers, drains, and other structures adjacent to or across the line of work and light charges of explosives thoroughly covered shall be used at such locations. The Contractor shall be responsible for and shall make good any damage caused by blasting or accidental explosion.

Section G 14 MAINTAINING AND SAFEGUARDING TRAFFIC. The Contractor as directed, shall build and maintain such temporary roads, passageways, trestles, and bridges as shall be deemed necessary for the accommodation of traffic on streets and roads interfered with by the Contractor's operations, for convenient access to the various parts of the work, for access to adjacent buildings and properties, and for other necessary purposes incidental to the work. He shall erect such temporary guards, fences, warning signs, lights, and signals as may be necessary or required to protect all traffic on the streets and roads.

The temporary roads and the Contractor's access roads shall be located where directed or approved, and shall be maintained in good condition. Calcium chloride or other approved means, shall be used to maintain the roads in a dust-free condition.

Section G 15 REPLACING, RELOCATING, AND PROTECTING EXISTING STRUCTURES. The location of existing surface and subsurface structures as shown, are based on the best information obtainable, but the Board does not guarantee the accuracy of the data. The Contractor shall be held responsible for checking this data himself as to actual locations and interferences.

Before beginning any excavation, the Contractor shall give at least 48 hours' written notice of his intention to do so to any companies and parties

that have any pipes, conduits, poles, or other structures which may be affected by such excavations. The Contractor shall make such arrangements for properly securing and protecting such pipes or structures during the progress and until the completion of the work as shall be satisfactory to the owners thereof, or shall permit and facilitate repairs and changes by the owners. Satisfactory evidence of such arrangements shall be filed with the Engineer, if required, before the work in question begins.

During construction, the Contractor shall take every precaution including hand digging where necessary, to avoid any movement of earth or rock that would damage or endanger existing surface or subsurface structures. The Contractor shall satisfactorily shore, support, and protect any and all pipes, conduits, and structures affected by his work, and shall be responsible for any damage resulting thereto. Any service or utility broken or damaged by the Contractor, unless ordered otherwise, shall be replaced, repaired, or restored to the satisfaction of the Board at the expense of the Contractor.

All existing pipes and structures shall be maintained in service by the Contractor, or if approved, relaid at a more suitable elevation or location, and the cost of the work shall be borne by the Contractor.

In all cases where temporary pipes must be installed or where sewage, water, or drainage must be pumped or otherwise carried over or around excavations or any other portions of the work, the Contractor shall furnish such pipes, pumps, and all other materials, equipment, and labor as are required to maintain continuity of service in the utilities affected.

The Contractor shall not be entitled to any extension of time or any damages on account of any postponement, interference, or delay caused by any such structures being on the line of work.

Sect. G 16 CARE AND PROTECTION OF WORK AND MATERIALS. From the commencement of the work until its completion, the Contractor shall be solely responsible for damage he may do or cause to the property of the Board, for the care and protection of the work covered by the Contract, and for the materials delivered at the site or incorporated in the work.

All excavated materials, construction equipment, and materials and equipment to be incorporated in the work, shall be so placed as not to injure the work and so that free access may be had at any time to all parts of the work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly and conveniently stored so as to inconvenience as little as possible public travel and adjoining tenants.

All loss, injury, or damage to the work or materials, from whatever cause, shall be made good at the expense of the Contractor.

The Contractor shall provide suitable and adequate storage room for materials and equipment during the progress of the work, including approved weather-tight storage for all materials and equipment which might deteriorate if left uncovered. He shall provide protection against damage or deterioration for all equipment during storage, and after installation, until the equipment is put to use by the Board.



During adverse weather, the Contractor shall take all necessary precautions so that the work may be properly done and be satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood and building paper shelters, or other approved means.

During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and proper curing, aging, or drying will result. Protected spaces shall be artificially heated by approved means which will result in a moist or a dry atmosphere according to the particular requirements of the work being protected.

The Engineer may suspend construction operations at any time, when in his judgment, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather may be, in any season.

Sect. G17 MINIMUM NOISE. The Contractor shall use every effort and means possible to minimize or eliminate noise caused by his operations, which the Engineer may consider objectionable. The Contractor shall provide working machinery, equipped with silencers or mufflers where required, designed to operate with the least possible noise.

Sect. G18 EQUIVALENT MATERIALS AND WORKMANSHIP. Wherever in the Contract Documents a particular brand or make of material is shown or specified by trade name or otherwise, such brand or make of material is to be regarded as a standard. Any other brand or make of materials which, in the opinion of the Engineer, is the recognized equal of that specified as to composition, characteristics, workmanship, economy of operation and maintenance, and is suitable for the purpose intended, may be accepted.

All materials incorporated in the work shall be of domestic make, new, of standard and first grade quality, and of the best workmanship and design. No inferior or lowgrade materials will be either approved or accepted, and all work of assembly and construction must be done in a neat, first-class, and workman-like manner.

Sect. G19 DESIGN OF EQUIPMENT. All parts of the equipment furnished under the Contract shall be amply proportioned for all stresses that may occur during fabrication, shipment, erection, and intermittent or continuous operation. Identical parts shall be interchangeable.

The equipment to be furnished under the Contract shall be of an approved type, and the product of manufacturers who have successfully built equipment of the same size, capacity, and type for at least 5 years. The Contractor shall submit any information that the Engineer may consider necessary in order to determine the ability of the manufacturer to produce the equipment as called for by the specifications.

Sect. G20 TESTING OF MATERIALS. If the Engineer so requires, either prior to beginning or during the progress of the work, the Contractor shall submit samples of materials for such special tests and analyses as may be necessary to demonstrate that they conform to the specifications. The Board will select and pay for testing laboratories to perform tests and analyses on concrete aggregates, mixed and placed concrete, pipes and similar materials, so as to maintain strict compliance with the requirements of the specifications. Such samples shall be furnished, taken, stored, packed, and shipped as directed, at the expense of the Contractor.

The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection, testing, and approval before the materials and equipment are necessary for incorporation in the work. Any delays resulting from his failure so to do shall not be used as a basis of a claim against the Board or the Engineer. For each proposed use of concrete, he shall provide not less than 24 hours notice, to permit the testing laboratory to have men present for inspection and sampling.

If the Engineer orders sampling and analyses or tests of materials which are usually accepted on certification of the manufacturer but which appear defective or not conforming to the requirements of the specifications, the Board will bear the costs of tests and analyses if the material is found to be sound and conforming to the specifications; if found defective or not conforming to the specifications, the Contractor shall bear all of the costs.

Sect. G21 CERTIFICATES OF MANUFACTURER. For pipe, cement, steel reinforcement, paint, and similar materials which are normally tested in the shop by the manufacturer, the Contractor shall furnish the Engineer certified records of physical, chemical, and other pertinent tests, and/or certified statements from the manufacturer that the materials have been manufactured and tested in conformity with the specifications. Where such a small quantity of material is required as to make physical tests or chemical analyses impracticable, a certificate from the manufacturer stating the results of such tests or analyses of similar materials which were concurrently produced, may at the discretion of the Engineer, be considered as the basis for the acceptance of such materials.

Sect. G22 INSPECTION. The Board contemplates and the Contractor agrees to the most thorough inspection of the work at all times by the Board, and the Engineer, including all labor performed and materials furnished, delivered, or intended to be used in the work, including manufacture, preparation, and testing. The Contractor shall not use any material which has not been inspected or tested, and accepted, or perform any work except under inspection by the Engineer. The Contractor shall keep the Engineer advised of the progress of the work away from the site requiring inspection or witnessing of tests, so that arrangements may be made for inspection at the proper time.

Inspection, test, or acceptance of any materials prior to shipment shall not be deemed as a final acceptance of the materials. The Engineer may inspect or require tests or analyses of any portion of the materials at any time after delivery to the site either before or after installation, and any material which is found to be defective or which does not otherwise conform to the requirements of the specifications, shall be rejected and removed forthwith from the site, as provided in the Contract.

Sect. G23 HAULING MATERIALS. Before starting any work, the Contractor shall arrange with the Commonwealth, county, or municipal officials having jurisdiction for the use of routes of travel for hauling materials that will result in minimum inconvenience to the traveling public. Routes of travel so scheduled shall be adhered to throughout the course of the work.

The Contractor shall, at his own expense, handle, haul, and distribute all materials to the different portions of the work, as required. Delays in handling involving storage charges and demurrage charges by the railroad and other companies shall be at the expense of the Contractor.

Sect. G24 WEIGHING AND MEASURING. Whenever requested by the Engineer, the Contractor shall provide personnel, and all required instruments and devices for weighing and measuring, for determining the quantity of materials.

For estimating quantities, in which the computation of areas by geometric methods would, in the opinion of the Engineer, be comparatively laborious, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adaptable to the measurement of such areas.

Sect. G25 WATER SUPPLY. The Contractor shall furnish at his own expense an adequate supply of all water required for his own use during the construction of the work under the Contract, paying for the expenses and charges for the same, and installing and paying for a meter if it is required. Upon completion of all work, the Contractor shall disconnect and remove all temporary connections and fixtures.

Water for use in testing completed sections of the conduit will be supplied by the Board, upon request of the Contractor. Operation of valves to permit the flow of water from the City system into lines which have not been tested and approved shall be performed directly by employees of the Board.

Sect. G26 ELECTRICAL POWER AND TELEPHONE. The Contractor shall arrange with the local power, utility and telephone company for all temporary light and power service required by him in the performance of work under the Contract, and shall pay all expenses and charges related thereto and all costs of electrical power consumed by him. The Contractor shall provide sufficient temporary light to assure that all work can be done in a safe and workmanlike manner.

The Contractor, at his own expense, shall arrange with the local telephone company for all telephone service required by him in the performance of his work under the Contract.

Upon completion of all work, the Contractor shall disconnect and remove the temporary light and power service.

Sect. G27 SANITARY REGULATIONS. The Contractor shall provide and maintain in a strictly sanitary manner toilet facilities for his workmen, which shall be screened from public view. The sanitary facilities shall consist of chemical toilets which shall be adequately maintained to prevent odors or nuisances of any kind. The location of the sanitary facilities shall be as approved. The Contractor shall observe and enforce all sanitary regulations and maintain satisfactory sanitary conditions around and on all parts of the work.

Sect. G28 IDENTIFICATION SIGN. The Contractor shall erect and maintain, in an approved prominent position on the site, an acceptable sign, plainly lettered:

BOARD OF WATER COMMISSIONERS  
City of Springfield, Massachusetts  
Additional West Parish Filters  
CONTRACT 54

---

CONTRACTOR

CLINTON BOGERT ENGINEERS  
Consultants  
New York, New York

The sign shall be 5 ft. long by 7 ft. high, fabricated as approved. The entire sign shall be given a prime coat and two coats of gloss enamel paint. The color of the sign, and the style and size of the lettering shall be as approved.

At the expiration of the work, the Contractor shall remove the sign unless otherwise notified by the Board.

Sect. G29 FIELD OFFICE FOR ENGINEER. The Contractor shall furnish and maintain a temporary field office for the Engineer at a designated location. The field office may be a portable framed building, an automobile trailer or space in an existing building, as approved, and shall provide not less than 200 sq ft of floor space. The office shall be watertight and weatherproof, shall have screened windows, and a solid door with a lock and three keys. The office shall be provided with electrical and telephone service for the duration of the Contract, shall be equipped with heating equipment adequate to maintain a temperature of at least 70 deg F under all conditions, and shall be provided with janitor and maintenance service. The Contractor shall provide sanitary facilities, hot and cold water, toilet paper, towels, and soap. The office shall have linoleum on the floor and shall be furnished with:

- (a) two lockers, each 18 in. by 24 in. by 6 ft high,
- (b) shelves and supply cabinet as approved,
- (c) one plan rack as approved,
- (d) one 4-drawer legal size filing cabinet,
- (e) one office desk and chair,
- (f) two drafting stools, and
- (g) one drafting table or built-in table, as approved.

The Contractor shall pay all service bills, except for telephone charges.

Upon final acceptance of all work under this Contract, the Contractor shall have all services discontinued and shall remove the field office when directed.

Fire insurance, extended coverage, and theft insurance coverage for the engineer's field office equipment shall be provided by the Contractor in the amount of \$3,500 and the insurance company or companies shall be as approved. The insurance coverage shall be payable in case of loss to the Board and to the Engineer.

Sect. G30 STANDARDIZATION OF GREASE FITTINGS. The Contractor shall ensure that all grease fittings on each piece of equipment furnished under the Contract are standardized so that only the "Alemite" button-head type of fitting is utilized. Fittings shall be standard or giant size according to the type of service performed.

Sect. G31 LUBRICATION AND PACKING. The Contractor shall furnish and use, for each piece of equipment, the type of lubricant and packing recommended by the manufacturer of the equipment. He shall furnish a schedule, in triplicate, listing the type, frequency of application of lubricant, and manufacturer of the lubricant and packing recommended for each piece of equipment. At the time of turning the installation over to the Board, the Contractor shall furnish one month's supply of each type of lubricant, and sufficient packing to repack each piece of equipment once.

Sect. G32 TOOLS, SPARE PARTS, AND MANUALS. Each piece of equipment shall be furnished with a dozen lot assortment of keys, bolts, nuts, lockwashers, and pins, in tagged sacks. Each piece of equipment having shear pins shall be furnished with two dozen shear pins of each size used, in tagged sacks. Each piece of equipment having leather or rubber washers shall be furnished with two extra washers of each size and material required.

The Contractor shall furnish, with each piece of equipment, the complete set of tools normally furnished by the manufacturer for the servicing of the equipment.

Each major piece of equipment as specified or determined by the Engineer, shall be furnished with the spare parts listed in the specifications for the equipment or, if no such list is provided, with the standard set of spare parts recommended by the manufacturer of the equipment. The recommended list of spare parts shall be submitted to the Engineer for approval, prior to the delivery of the equipment.

All spare parts shall be plainly tagged and marked for identification and ordering. They shall be treated with suitable preservatives, wrapped, and packaged to provide adequate protection during storage.

The Contractor shall furnish and deliver to the Engineer, prior to the installation of any piece of equipment, four sets of instruction books or trade literature for such equipment to enable the operator to understand the mechanism and its maintenance. Complete numbered parts lists shall be supplied with the instruction books.

The Contractor shall furnish four sets of parts drawings of all equipment, including minor parts and sub-assemblies, in such detail as will permit disassembly of each piece of equipment for maintenance. Parts drawings shall show such fabrication and assembly details as are required to permit disassembly and assembly of the equipment.

Sect. G 33 ANCHORS AND ACCESSORIES. All anchors and accessories, required to be cast with the concrete, shall be accurately set and maintained in their required positions. Anchor bolts shall be set so as to provide not less than one and one half full threads above the nuts.

Sect. G34 EQUIPMENT FOUNDATIONS. The Contractor shall furnish and place concrete foundation pads, as detailed, for all equipment and piping, where shown, specified, or required. The Contractor shall furnish and place concrete and steel reinforcement for the pads. Suitable anchor bolts shall be furnished and placed for all equipment, with a minimum of 4 bolts per base.



The Contractor shall furnish and place non-shrink grout for bedding the equipment and piping bases on its supporting concrete foundation pad. The concrete foundation pads and the bottom of the equipment or pipe shall be thoroughly cleaned and the top of the pad wetted before grouting. Grout shall completely fill the space between the equipment or pipe and the pad. Leveling wedges shall not be removed before the grout has attained its final set. Voids left by wedges shall be pointed. Exposed surfaces of grout shall be troweled and rubbed to a neat finish.

Sect. G35 CUTTING AND PATCHING. Where it becomes necessary to cut walls or floors for installation of pipe, conduits, sleeves, saddles, boxes, inserts, foundation bolts, anchors, and other similar work, the location and size of cut and method of cutting shall be approved by the Engineer, and adjacent work shall not be necessarily damaged. On the completion of the cutting, all affected areas shall be restored to the satisfaction of the Engineer. All costs of cutting and restoration shall be borne by the Contractor.

Sect. G36 TESTING WATERTIGHTNESS OF STRUCTURES. The Contractor shall provide all labor, materials, and devices, as approved, for testing the watertightness of structures.

Sand bins, Regulator House wells, chambers and manholes shall be tested before equipment and materials are installed, by filling them to the overflow level and allowing the water to stand for 24 hrs. Each unit shall be tested separately and if necessary shall be bulkheaded from adjacent units. No structure shall be tested until the concrete is at least 28 days old. Leaks shall be repaired to the satisfaction of the Engineer, and the unit retested.

Before testing the Filters, the Contractor shall disinfect the Filters and place fill to the top of Filter walls. The Filters shall be tested by filling them to overflow level, and allowing the water to stand for 7 days. At the end of the 7 day period, additional water, if required shall be added to fill the Filters to overflow level again. The Contractor shall measure the drop in level with a hook gage, for a period of 24 hours. If leakage exceeds 0.001 of the volume of the Filters, the Contractor shall test the suspected areas of leakage by underwater methods or by lowering the water level, and using a non-toxic dye. Leaks shall be repaired to the satisfaction of the Engineer and the Filters retested until the above requirements are met.

Sect. G37 SALVAGED MATERIALS. All materials and equipment removed from existing structures, except that designated as rubbish, shall remain the property of the Board, and shall be stored on the site by the Contractor, as directed. Rubbish shall be removed from the site and disposed of by the Contractor at his own expense.

Sect. G38 CLEANING UP AND REMOVAL OF DEBRIS. The Contractor shall expressly undertake at his own expense:

(a) frequently to clean up all refuse, rubbish, scrap materials, and debris caused by his operations, so that at all times the site shall present a neat, orderly, workmanlike appearance;

(b) before semi-final payment, to remove all surplus material, falsework, temporary structures, including foundations thereof, plant of any description, and debris of every nature resulting from his operations and to put the site in a neat orderly condition; and

(c) before semi-final payment, he shall restore all areas which have been used for storage of materials and equipment, and all areas which have been disturbed by his operations to their original condition, or to a condition satisfactory to and approved by the Board. He shall seed or sod any grassed area damaged by his operations, and shall maintain such areas until the expiration of the maintenance period. Any such areas which fail to show a uniform stand of grass shall be reseeded or resodded until an acceptable stand of grass exists.

GENERAL SPECIFICATIONS

HAMPDEN COUNTY  
APPROVED

JUL 25 1962

Walton S. Walsh  
Thomas F. Sullivan  
William F. Stratton  
County Commissioners



excavation for structures, except for pipe in trench, shall be determined by vertical planes 2 ft beyond the outermost footing of the structure or beyond vertical walls below ground where there are no footings, or as shown or ordered. The limiting lines of rock excavation for pipe in trench shall be as shown or ordered.

Excavations in rock shall be made by drilling and blasting or other approved methods. Drilling and blasting shall be conducted carefully and in such manner as to make the excavation conform closely to the limiting lines, and to prevent shattering the rock upon or against which masonry is to be built or foundation material is to be laid.

Special care shall be exercised in drilling and blasting adjacent to or in proximity of any existing structures, in order to prevent damage to the structures or disturb their supporting foundations and backfill.

Whenever, in the opinion of the Engineer, blasting is liable to shatter rock or injure any existing structure or foundation, the Contractor shall cease blasting and shall continue to excavate rock by wedging and barring or other approved methods. The Engineer reserves the right to direct that small charges of ordinary blasting powder shall be used.

The rock surface upon or against which concrete is to be built or foundation material is to be laid shall be left sufficiently rough to bond with the concrete, and, if required, shall be cut and roughened. Before any concrete is placed upon or against the rock, the rock surface shall be entirely free from all soil, gravel, boulders, scale, loose fragments, and other objectionable matter. Streams of water under sufficient pressure, stiff brushes, hammers, and other effective means shall be used to accomplish the cleaning.

Rock subgrade which has been badly shattered or fractured, by the contractor's operations, and in the opinion of the Engineer is unsuitable as foundation, shall be removed and replaced with concrete or foundation material, as directed. All such work shall be performed at the Contractor's expense.

Sect. S 1.6 UNAUTHORIZED EXCAVATION. All excavation carried beyond the lines and grades shown, specified or established by the Engineer, together with its disposal, shall be at the Contractor's expense. All such spaces shall be filled by the Contractor, at his own expense, with concrete or foundation material, as directed.

Sect. S 1.7 STORAGE AND DISPOSAL. Excavated material, which is suitable and approved for backfill and fill, shall be placed in storage piles unless or until it can be placed in the work. It shall not be placed close to the sides of excavations, where the weight of the material could create a surcharge on such sides, whether sheeted or not. Places for storage shall be only where designated.

Excavated material: in excess of that required for backfill, fill, or topsoil; unsuitable for backfill or fill; and from existing Wash Water Settling Basin No. 2; shall be disposed of by the Contractor in the designated spoil areas, as directed. If spoil areas are filled, additional excess material shall be disposed of off the site, at the Contractor's expense.

Sec. S 1.8 SHEETING AND BRACING. Where excavations are made with vertical sides which require supporting, the sheeting and bracing shall conform

to the requirements of the Massachusetts Department of Labor and Industries, be of sufficient strength to sustain the sides of the excavations and to prevent movement which could in any way injure the work, or diminish the working space sufficiently to delay the work. Sheet piling shall be of a material that will not split while being driven.

Steel sheet piling shall conform to the requirements of ASTM Designation A 328, be of an interlocking pattern, and be of adequate weight and section to withstand the loads imposed, as approved. Steel sheet piling shall be driven to the full depth required before excavation is started. All bracing shall be removed as backfilling progresses.

Special precautions shall be taken where there is additional pressure due to the presence of other structures, and in such case, the Contractor shall submit, for approval, an outline plan showing the lines to which he proposes to drive sheet piling and the method proposed for bracing against the loads imposed by the structure. Sheet piling and bracing shall be removed before the completion of the work unless otherwise shown or specified.

Sect. S 1.9 DEWATERING. The Contractor shall provide, operate, and maintain satisfactory facilities and equipment including wellpoints, if necessary with which to collect and pump all water entering excavations or other parts of the work to suitable places for disposal. All excavations shall be kept free of water until the work or structure to be built therein is completed. Approved settling basins and sumps shall be provided for catching and temporarily holding water containing mud, clay, sand, or other material in suspension, pumped from excavations. Such basins shall be large enough to allow reasonable storage time for the settlement of such suspended matter. The settled material shall be cleaned out frequently and disposed of as directed.

Lowering of ground water to the injury or detriment of other structures shall be a part of the Contractor's risk and responsibility. Any structure injured or damaged as a result of the lowering of ground water shall be repaired or replaced to the satisfaction of the owners thereof, at the expense of the Contractor.

Sect. S 1.10 BACKFILL AND FILL. All backfill and fill, unless otherwise specified, shall consist of a suitable selected and approved earth generally from storage of approved excavated soil, free from organic matter, boggy, peaty humus or other unsuitable material such as silt, rubbish, waste, ashes, or cinders. If sufficient suitable material for backfill or fill is not available from the excavated material, as determined by the Engineer, the Contractor shall procure elsewhere a sufficient quantity of suitable material and shall furnish and place such material. No frozen earth shall be used for backfill, and all stones more than 6 in. in the largest dimension shall be removed from acceptable earth for backfill and fill.

Any rock, no larger than 6 in. in the largest dimension, may be used as backfill and fill if approved, in conjunction with suitable material to fill the interstices, and shall not be placed closer than 24 in. to any structure, except for pipe in trench. All rock, no larger than 6 in. in the largest dimension, may be used as backfill and fill if approved, for pipe in trench, provided that it is not placed closer than 24 in. above the top of the pipe.

Sect. S 1.11 PLACING AND COMPACTING BACKFILL AND FILL. Backfills and fills shall be made to the slopes, grades, and elevations shown, specified, or required.

Backfill shall not be placed until the structure has been inspected in place and approved. Backfilling shall be carried out as soon as possible after such approval, subject to restrictions under Sect. S 2.18, and the extent of pipe trench left open shall be kept to a minimum.

Trenches shall be backfilled to a depth of not less than 24 in. above the top of the pipe or other structures therein, for the full width of the trench. Such backfill shall be uniformly placed on each side of the pipe in 6 in. layers, wetted as required, and firmly compacted by approved mechanical tamping equipment. Care shall be taken not to damage the pipe or structures.

After a compacted coverage of 24 in. has been completed, the remainder of the trench shall be compactly filled in an approved manner, to a density at least equal to that of the adjacent undisturbed soil, so as to avoid future unequal settlement. Puddling for compaction will not be permitted except with coarse to medium granular materials. Bulldozing of backfill material into trenches will be prohibited unless it is done in uniformly spread layers, not over 12 in. thick or 6 in. thick under pavements, and immediately machined or mechanically tamped.

When sheeting is being withdrawn all cavities left thereby shall be filled with suitable granular earth, hosed or tamped in place so as to fill all voids thoroughly.

Filling of areas, other than areas over the tops of filters, shall be done in uniformly spread layers of not more than 12 in. loose depth and satisfactorily compacted by rolling or machine tamping. The roller for such compacting shall weigh at least 150# per linear in. of roller tread. Such compaction shall be done by rolling, rerolling, and cross rolling. However, such fills shall not be placed until the existing surface has been suitably smoothed by bulldozing and compactly rolled.

Filling of areas over the tops of filters shall not be done until the concrete has reached its specified 28 day minimum compressive strength. Sand fill shall be as specified for in Contract Items Sect. 24.3, and earth fill shall be as specified in Sect. S 1.10 but shall not contain any stone larger than one in. in the largest dimension for the areas over the filters. The Contractor shall not place equipment upon nor have vehicles travel over the filters for any purpose other than for the work under Item 32. When sand and earth fill is placed by conveyor belt or crane, the maximum drop of material from the belt to the top slab shall be 6 ft, and the height of the fill cone shall not exceed 3 ft. Sand and earth fill shall be uniformly spread but shall not be compacted.

Trenches for pipes and other excavations shall be made in filled areas, no sooner than 90 days after compaction has been completed. Backfilling thereof shall proceed as specified hereinbefore.

Backfill or fill shall be carried to a subgrade that permits topsoil or paving of the required depth to be placed to bring it to the finished grade. As far as practicable, the underlying backfill or fill shall be given time to settle through several heavy rains or by artificial wetting before topsoil or paving is placed.

The Contractor shall provide material as required, at his own expense, to compensate for settlement of backfill and fill.

SECTION S 2CONCRETE

Sect. S 2.1 PORTLAND CEMENT. Portland cement shall conform to the requirements of ASTM Designation C 150 for Type II cement, or with written permission of the Engineer, Type III, high-early-strength cement. All cement shall be delivered in bags of 94 lb each. Each bag shall be plainly marked with the name of the manufacturer, the date of manufacture, the type of cement, and the net weight. Only one brand of cement shall be used in the work, except as approved. Packages received in a damaged condition will be rejected. Cement in packages shall be stored in an approved watertight structure which will protect the cement from dampness. Cement shall be piled on dry raised floors to a height not exceeding 7 ft.

Sect. S 2.2 AIR-ENTRAINING ADMIXTURE. All concrete shall contain an air-entraining admixture, conforming to the requirements of ASTM Designation C 260, except that the admixture shall be added to the mixer at the batching plant. The quantity of air-entraining admixture to be used shall be such that the air content of the concrete shall be not less than 3 percent nor more than 6 percent, by volume. The air-entraining admixture shall be equal to Darex AEA, Aerolith, or Vinsol resin.

Sect. S 2.3 ADMIXTURES. The use of other admixture, except as specified, to improve workability, facilitate hardening, or for waterproofing, will not be permitted, except as approved.

Sect. S 2.4 AGGREGATES. Concrete aggregates shall conform to the requirements of ASTM Designation C 33. Where the clear cover to the reinforcement is 2 in. or more, the maximum size of coarse aggregate shall be 1-1/2 in., where the clear cover is less than 2 in., the maximum size of coarse aggregate shall be 3/4 in.

At least one month before the aggregates are to be used, the Contractor shall submit certified reports of tests indicating that the aggregates comply with the specifications. If samples are ordered for testing by the Engineer, they shall be submitted at least one month before the aggregates are to be used. Additional samples may be ordered by the Engineer at any time.

Sect. S 2.5 WATER. Water for mixing concrete and mortar shall be taken from an approved source and shall be clear and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances.

Sect. S 2.6 READY-MIXED CONCRETE. Ready-mixed concrete shall conform to the requirements of ASTM Designation C94, and shall be secured from an approved dealer having adequate equipment for proportioning, mixing, rigidly controlling, and delivering concrete in the quantities required for the work. The Engineer shall have the right to inspect at all times the plant and processes of the manufacturer. Thirty days in advance of the contemplated use of ready-mixed concrete, the Contractor shall submit to the Engineer for approval, the name and qualifications of the firm and plant from which he proposes to secure ready-mixed concrete. The Contractor shall notify the Engineer at least 24 hours in advance of pouring, so that the Engineer may inspect the batching plant and take samples.

Sect. S 2.7 PROPORTIONING AND MIXING CONCRETE. Concrete shall be mixed by weight, and the proportions and the water content adjusted to secure workable mixtures which, unless otherwise approved, will have the following characteristics:

Minimum Compressive Strength End of 28 Days (psi)	Maximum Water-Cement Ratio (gal. per bag)	Slump (in.)
4,000	5	2 to 5
3,000	5-1/2	2 to 5
2,000	6-1/2	2 to 5

Mixers shall be of the rotary batch type and so made and operated as to insure a thorough mix, homogeneous in composition and uniform in color, with all coarse aggregate completely covered with mortar. The volume of the mixed material per batch shall be governed by the size of the mixer and the composition of the concrete, but shall not exceed the manufacturer's rated capacity of the mixer. Each mixer shall be equipped with a suitable charging hopper, water storage tank and a water measuring device that is capable of being locked and that will permit the discharge of water only while the mixer is being rotated. All water, except that used for cleaning purposes, shall be admitted to the mixer through the measuring device. Each mixer shall be so equipped as to lock the discharge lever automatically until the batch has been mixed the required length of time after all materials have been placed in the mixer. The mixer shall be thoroughly washed and cleaned before and after use and shall be maintained in effective operating condition at all times. If the mixer is not used for a period of 30 minutes, it shall be thoroughly cleaned before reuse.

All aggregates shall be measured by weight. The Contractor shall provide, as approved, suitable automatic weighing equipment so that the fine and coarse aggregates for each batch will be weighed separately. All materials for each batch of concrete, including the water, shall be mixed for at least 1-1/2 minutes, while the drum revolves at the speed for which it was designed, preferably between 12 and 20 rpm. In any case, the batch shall not be discharged until every particle of the coarse aggregate shall be completely covered with mortar. Any batch mixed less than 1-1/2 minutes or not completely discharged within 60 minutes after the addition of water shall be wasted at the Contractor's expense. No materials for a batch of concrete shall be placed in the drum of the mixer until all of the previous batch has been discharged therefrom.

Where permitted, for small quantities of concrete, the Contractor may use either a small manually controlled portable mixer or hand mixing; in either case, volumetric measurement of aggregate will be allowed.

Sect. S 2.8 TESTS. In advance of incorporation in the work, the Contractor shall design concrete mixtures, as specified in Sect. S 2.7. The Contractor shall prepare and test a total of eight cylinders, conforming to the requirements of ASTM Designation C 31 and C 39, for each minimum compressive strength and for each maximum coarse aggregate size. Two cylinders will be broken after 3 and 7 days, and 4 cylinders shall be broken after 28 days. The strength of the 28 day cylinders shall be 15 percent greater than each minimum strength designation. The Contractor shall submit copies of the design mix, certified records of tests, and the source of supply of all concrete ingredients, so that the laboratory employed by the Board may verify the tests.

During the placing of concrete, tests will be made by a laboratory employed by the Board to verify the compressive strengths, and to ascertain the proportions of water, cement, and fine and coarse aggregates. If any such tests fail to meet the requirements or if there is any unreasonable variation in the quality of the materials, concreting shall be stopped. Faulty concrete shall be removed, additional tests, and necessary adjustments in the mix shall be made as required to produce a concrete meeting the specification requirements.

Sect. S 2.9 FORMS. The use of forms will not be permitted for forming the tops, backs and bottoms of thrust blocks or anchor blocks, or for bottoms of slabs poured on earth and pipe cradles. Forms shall be provided elsewhere and shall conform to accepted practice as to workmanship and bracing.

Forms shall be tight, adequately constructed, and securely held in place to withstand the load of the fresh concrete and the effects of the vibrating process and to prevent the leakage of mortar. Alinement of forms shall be carefully done and they shall be secured to the lines required. Forms shall be clean and shall be recleaned and repaired for each use. Form surfaces against which concrete is to be poured shall be coated with an approved non-staining material to prevent adhesion of the concrete. All form lumber which is not so coated shall be thoroughly wetted immediately before concreting. Form surfaces against walls to receive tile shall be coated with a retardant, as specified in Sect. S 2.15.

Temporary openings shall be provided at the base of all wall forms, and at other points where necessary to facilitate cleaning and inspection immediately before placing concrete.

All corners, edges, and arrises shall be constructed with a  $3/4$  in. chamfer, whether or not shown, unless otherwise noted.

Provision shall be made in the form work for all 8 ft. or longer beams and slabs except base slabs, to provide a camber of  $1/4$  in. for every 16 ft. of span.

Form lumber shall be dressed on four sides and only selected boards shall be used for form surfaces in contact with concrete. For all exposed Regulator House surfaces, pressed wood lined or sheet metal forms shall be used. The pressed wood shall consist of nonwarping fiber board not less than  $3/16$  in. in thickness or  $1/4$  in. plywood, with the lining securely nailed to the forms to produce a smooth concrete surface.

Sect. S 2.10 FORM FASTENINGS. Form ties and form hangers shall be provided with a water seal, and shall be of such type, that after forms are stripped, the ties can be broken back a minimum of 2 in. from the surface of the concrete, or after bolts are removed, the portion of the tie remaining in the concrete shall be no closer than 2 in. to the face of the concrete. Ties shall not be fitted with lugs, cones, washers, or other devices within the form which will leave a hole larger than  $7/8$  in. diam or an excessive depression back of the exposed surface of the concrete. To assure a break back of 2 in., the portion of the tie which is removed from the concrete shall be coated with a material which will not impair the concrete or prevent bond between the concrete and the mortar patch specified in Sect. S 2.12. The spacing of form ties and form hangers shall conform to the manufacturer's recommendations.

Sect. S 2.11 PLACING CONCRETE. Concrete shall not be placed before forms, embedded materials, and reinforcement are securely fastened in position, and these and all other preliminary work have been inspected and approved. Concrete shall not be placed in water, unless approved. If chutes are used, they shall be of metal or metal lined.

When concrete is poured on foundation material, the Contractor shall cover the foundation material with a polyethylene film covering, 6 mils thick, equal to Visking Co. VisQueen film. The covering shall be used in the widest practical widths and shall be lapped 6 in. at all edges.

Concreting operations shall be continuous between joints shown until the pour is completed. Slabs shall be poured monolithically with beams and girders. The maximum rate of placing concrete for walls shall conform to the recommendations of the form tie manufacturer. Concrete shall be handled from mixer to forms in such a manner that no segregation of ingredients will take place. Concrete shall be deposited in layers approximately level and not more than 18 in. deep. Concrete shall be placed in such a manner that it will not drop freely more than 4 ft., and shall be placed as nearly as practicable in its final position to minimize segregation of ingredients. In slabs, concrete may be placed by buggy bucket, ready-mix truck, or pumping methods, provided that for the method selected, the specified slump is not exceeded. The initial pour for all walls shall consist of 3 in. of mortar of the specified mix without any coarse aggregate. Placing of concrete containing the coarse aggregate shall follow immediately. In general, concrete in walls shall be placed by means of a rectangular metal drop chute with hoppers. Drop chutes shall be provided in several lengths so that the total length of chute can be adjusted as concreting operations progress. Under special conditions for thin sections and sections that are heavily reinforced, concrete shall be deposited as directed, through temporary openings in the sides of wall forms by means of drop chutes outside of forms. Temporary openings shall be provided spaced approximately 5 ft vertically and 10 ft horizontally.

While being placed, concrete shall be compacted with the aid of mechanical internal vibrators applied directly to the concrete in a vertical position, and by means of mechanical external vibrators. The intensity and duration of vibration shall be sufficient to cause concrete to flow, to compact thoroughly and to embed completely the reinforcement, pipe, conduit, and similar work. Vibration shall be stopped immediately when a sheen of mortar first appears on the surface. Vibration shall be supplemented by hand spading in the corners and angles of forms while the concrete is still plastic and workable. The vibrating equipment shall be of an approved size and type.

Sect. S 2.12 REMOVAL OF FORMS. Forms shall not be removed until the concrete has hardened sufficiently to safely support on its own load plus any superimposed loads that might be placed thereon. Unless otherwise ordered, forms shall be left in place the minimum length of time specified as follows, from the date of placing concrete:

Waterways	7 days
Bottom forms of slabs and beams	7 days
Walls and vertical faces	2 days

For certain Filter Slab areas, as noted, the Contractor shall not remove shores until the supporting beams attain their 28 day strength.

Form ties shall be broken back as specified in Sect. S 2.10 immediately after removing forms. The holes left by such ties shall be immediately filled with mortar consisting of one part portland cement and two parts sand, of the same type and quality as used in the concrete, and the surface shall be finished with a steel trowel.

Care shall be taken in removing forms, walers, shorings, supports, and form ties to avoid spalling or marring the concrete.

Sect. S 2.13 JOINING NEW WORK TO OLD. Provisions shall be made for the proper bonding of fresh concrete with concrete which has set or partially set. Such provisions shall be made of steps, dovetails, or other devices as may be approved. Whenever new and old concrete are joined, the contact surface of the old concrete shall be thoroughly cleaned by means of stiff brushes or other tools and by application of a stream of water under pressure. The surface shall be clean and wet but free from pools of water at the moment the fresh concrete is placed. On horizontal joints, special care shall be taken to remove any laitance, waste mortar, and other substances which would prevent complete adhesion. A 3 in. layer of the mix specified in Sect. S 2.7, without coarse aggregate, shall then be placed over the contact surface of the old concrete immediately before the fresh concrete is poured.

Sect. S 2.14 NON-SHRINK GROUT. Non-shrink grout shall consist of Type I or II portland cement and sand, and shall contain an aggregate that will eliminate shrinkage of the grout. Materials used shall be as specified in Sect. S 2.1 through Sect. S 2.5 inclusive. The non-shrink grout mixture shall conform to Master Builders Co. Embeco Pre-Mixed Grout, or L. Sonneborn Sons, Inc. Ferrolith G Redi-Mixed Grout.

Sect. S 2.15 CONSTRUCTION JOINTS. Construction joints shall consist of keyed or roughened joints, and shall be installed where shown, specified, or ordered. Construction joints shall be keyed, unless otherwise noted to be roughened. If the Contractor desires to install additional construction joints, at his own expense, he shall submit, for approval, working drawings showing the proposed locations, and a pouring schedule. Construction joints shall conform to the details shown and shall be located where they will have the least effect on stability, strength, and watertightness. Waterstops, as specified in Sect. S 2.17, shall be installed in the joints where shown and in all additional construction joints.

Where roughened joints are to be installed, the Contractor shall roughen the joint so that the concrete coarse aggregate is exposed to an approximate depth of 1/4 in. Roughening shall be accomplished by either chipping the concrete or by using a retardant coating equal to Sika Chemical Corp., Rugasol. A joint sealer, as specified in Sect. S 2.16, shall be installed where shown.

Whenever a stoppage of more than 30 minutes occurs in the placing of concrete, due to some emergency, construction joints shall be installed as approved.

In order to promote watertightness of structures, concreting operations shall be so scheduled as to provide a delay between pours as follows:

<u>Pours</u>	<u>Minimum Time Between Pours (Days)</u>
Slab to Slab	3
Wall to Wall	3
Wall or Column to Slab	3
Slab to Wall or Column	1



All construction joints shall have a row of form ties located at a distance of approximately 6 in. from the joint to permit alining and tightening of the forms for subsequent sections.

Sect. S 2.16 EXPANSION, SLIDING, SLIP, CONTROL, AND CONTRACTION JOINTS. Expansion joints, contraction joints, control joints, sliding joints, and slip joints shall be constructed in accordance with the details shown or ordered. Where shown, waterstops as specified in Sect. S 2.17, shall be installed in the joints.

Joint sealer shall be a cold applied joint sealing compound equal to Servicized Products Corp. Vertiseal. The sealer shall be gray in the Regulator House where exposed to view.

Expansion joints shall be formed by means of a preformed joint filler conforming to the requirements of AASHO Designation M 153, Type III. The preformed joint filler shall extend to within one in. of the surface, and the remainder of the joint shall be filled to the surface with a sealer. The Contractor shall furnish and place floor covers for expansion joints where shown. Floor covers shall be abrasive aluminum assemblies with 1/4 in. by one in. rubber-cork strips equal to Architectural Art. Mfg. Co. Type 'F' Standard floor covers with anchors.

The horizontal surface of sliding joints shall be given a steel trowel finish, the groove (where shown) filled with a groove compound equal to Johns-Manville Albaseal, and the surface coated with Koppers Co. Bituplastic No. 28. The Contractor shall furnish and place two 1/16 in. thick graphite-asbestos pads equal to Johns-Manville Style No. 60 packing. After the pads are placed, the pad surfaces shall be coated with Koppers Co. Bituplastic No. 28 and the butt joints of the pads shall be filled with the coating.

The vertical surface of slip joints shall be formed perfectly plumb and true. A covering of polyethylene film, as specified in Sect. S 2.11, shall be installed on the vertical surface of slip joints by means of scotch tape.

Control and contraction joints shall contain joint sealers, wood strips, metal strips, and waterproof paper, and surfaces shall be coated with hot asphalt where shown. Joint sealers shall be as specified hereinbefore. Wood strips shall be Douglas fir or southern longleaf pine and shall be creosoted conforming to the requirements of AWWA Standard C18. After treatment, creosoted wood shall be handled and protected in accordance with the requirements of AWWA Standard M4 for maximum protection of damaged material or material cut into after treatment. Maximum protection shall consist of two coats of creosote followed by a heavy application of coal tar pitch. Metal strips shall be 8 oz. hard rolled lead coated copper. Waterproof paper shall conform to the requirements of ASTM Designation C 171, and shall be painted with hot asphalt prior to and after installation.

Sect. S 2.17 WATERSTOPS. Waterstops shall consist of a durable, elastic, cured rubber compound, or polyvinyl chloride which shall be dimensionally stable, dense, homogeneous, and non-porous. The waterstops shall be capable of effectively sealing construction, expansion, sliding, or contraction joints in concrete against the infiltration or leakage of water.

The rubber waterstops shall be equal to Servicised Products Corp., 6 in. flat dumbbell type or 9 in. center bulb type, and the polyvinyl chloride waterstops shall be equal to Electrovert, Inc., Durajoint Type No. 4 or Type No. 6 waterstops. Joints in or intersections of waterstops shall be adequately connected by means of molded fittings and vulcanizing for rubber waterstops; heating or soldering for polyvinyl chloride waterstops, so as to make the waterstops continuous and watertight.

At all joints, ends of waterstops shall be secured in position to prevent dislocation while concrete is being placed and vibrated. The method of securing waterstops shall be submitted for approval.

Sect. S 2.18 BACKFILL AND FILL. Backfill and fill shall not be placed against concrete walls for a minimum of 28 days after placing of concrete. Where walls span between slabs, the upper slab shall be in place a minimum of 14 days before backfill or fill is placed against the wall.

Sect. S 2.19 CONCRETING DURING COLD AND HOT WEATHER. Whenever the temperature is below 40 deg. F or when it is evident that the temperature will drop below that point, concrete shall not be placed, except when approved. If such approval is given, special precautions shall be taken both in mixing and placing concrete, as follows:

The Contractor shall provide equipment for heating concrete aggregates and water and for maintaining freshly placed concrete at a temperature of not less than 70 deg. F nor more than 90 deg. F. Forms shall be enclosed as approved, and heaters provided within the enclosures in an approved manner to maintain the required temperature, and such coverings shall be left in place for the specified curing period. Where it is necessary to remove the protection temporarily during the progress of the work, it shall be done in an approved manner, and restored as quickly as practicable.

Whenever the temperature is 85 deg. F or when it is evident that the temperature will rise above that point, concrete shall not be placed, except when approved. If such approval is given, special precautions shall be taken both in mixing and placing concrete, as follows:

The Contractor shall provide equipment for cooling concrete aggregate and water, and shall adjust the mix to retard the setting time of the concrete as directed. The cooling of the water and aggregates shall be such that the temperature of the fresh concrete is between 45 and 75 deg. F. Sunshades and windbreaks shall be provided in an approved manner to maintain the required temperatures and minimize excessive drying. Sunshades and windbreaks shall be left in place for 7 days. The Contractor, at his option, may adjust the mix by providing an approved admixture to maintain the temperature of fresh concrete between 45 and 75 deg. F. An accredited representative of the admixture manufacturer shall be present, for a one week minimum, while concrete is being placed to ascertain the proper use of the admixture and to achieve desired results.

Sect. S 2.20 CURING OF CONCRETE. Concrete shall be cured for a period of not less than 7 days. For the first 24 hours of the curing period, a continuous water spray shall be used to keep the concrete continuously moist. After the first 24 hours of the curing period, curing may be by means of a water spray, waterproof curing paper, or curing solution, except as specified hereinafter. Water spray shall keep the concrete continuously moist for the period of

curing. Waterproof curing paper shall conform to the requirements of ASTM Designation C 171, and shall be placed on the concrete with a 6 in. lap on all edges. Curing solution shall be as approved, and contain a red fugitive dye. Curing solution shall not be used for surfaces on the main floor of the Regulator House which are to receive a coloring and hardening agent, and Regulator House Canopies.

For surfaces of the main floor of the Regulator House which are to receive a coloring and hardening agent, as specified in Sect. S 2.22, the Contractor shall apply a compound equal to The Master Builders Co. Colorwax to cure concrete. Color shall be as selected by the Engineer.

Sect. S 2.21 FINISHING CONCRETE. Immediately after the removal of forms, honeycombing, pockets, and open spaces shall be thoroughly wetted and scrubbed with a wire brush and then shall be compactly filled with mortar consisting of one part of portland cement and two parts sand, of the same type and quality as used in the concrete. This shall be done on all surfaces even though they will afterward be covered with backfill. All surfaces shall be neatly finished at the edges; sprinkling with dry cement shall not be permitted.

The exterior surfaces of structures, to a level one ft. below finished grade, and on the interior surfaces of rooms, ceilings, beams, pilasters, and columns, shall be rubbed with power tools until a smooth homogeneous surface is obtained.

Hand rubbing will be permitted only when the final result is equivalent to that attained by mechanical means. The surfaces shall be thoroughly wetted and kept in that condition until the rubbing is completed. Corners, edges, and arrises shall be ground smooth and form offsets shall be leveled by power grinding. The surfaces shall be rubbed until all hollows, lines, form marks, and surplus materials have been removed. Grout or mortar shall not be used in the rubbing process except for filling defective places as noted above.

Slabs shall be floated with a wood float or power floating machine, except for the Clear Well Room. Clear Well Room Slab shall have a roughened surface. Slabs shall be made of constant thickness allowing for camber, except where drains occur.

Sect. S 2.22 FLOOR HARDENER. Floor hardener shall be applied to the concrete floor slab of the basement of the Regulator House. The chemical floor hardening solution shall consist of both magnesium and zinc fluosilicate in an aqueous solution and shall not contain impurities that will damage the concrete surfaces. The material used for the solution shall be equal to A.C. Horn Co., L. Sonneborn Sons, or the General Chemical Co. The application of the hardener shall be done by or under the direction of an authorized representative of the manufacturer.

A coloring and hardening agent, equal to the Master Builders Co. Colorcron, shall be applied to the concrete floor slab of the main floor of the Regulator House where no other floor finish has been shown or specified. The agent shall be applied at a rate of 65 lb. per 100 sq. ft. Color shall be as selected by the Engineer. After the coloring and hardening agent has been applied, the Contractor shall score the floor in an approved manner, in a 2 ft. square box pattern, to an 1/8 in. depth, with a power saw equipped with an abrasive wheel. Just before the end of the maintenance period and when directed by the Engineer, the Contractor shall wax the floor with a compound, equal to The Master Builders Co. Colorwax.

Sect. S 2.23 SLAB PROTECTION. After the curing period, concrete slabs shall be covered with waterproof curing paper conforming to the requirements of ASTM Designation C 171. All seams of such paper shall be overlapped at least 2 in. and sealed with tape. Further protection, while erecting equipment shall be provided by means of planking of sufficient size and such other protection as is required. The slab protection shall not be removed sooner than 28 days after concrete has been placed.

Sect. S 2.24 CONCRETE STAIRS. Concrete stairs shall be constructed in accordance with the details shown, or approved. Stairs shall be poured in smooth forms for risers and all corners shall be well rounded.

On all concrete stairs, abrasive metal safety treads, as specified in Sect. S 4.7 shall be cast integrally with the stairs.

Concrete stair treads shall be given a wood float finish and protected as specified in Sect. S 2.23.

Sect. S 2.25 DRILL ANCHORS. The Contractor shall furnish and place drill anchors for fastening equipment and materials to concrete and masonry, as shown, noted, or specified. Drill anchors shall be equal to Phillips Drill Co. Red Head Flush Anchors or Bulldog Division of Gregory Industries, Inc. GoldDigger Flush Drill Anchors.

SECTION S 3STEEL REINFORCEMENT

Sect. S 3.1 MATERIALS. Reinforcement bars for concrete reinforcement shall be deformed and plain bars of new billet-steel of intermediate grade, conforming to the requirements of ASTM Designation A 15.

Welded wire fabric for concrete reinforcement shall conform to the requirements of ASTM Designation A 185 and shall be supplied in flat sheets.

Sect. S 3.2 REINFORCEMENT DETAILS. Reinforcement details shall conform to the requirements of ACI Standards 315 and 318.

Bars shall be cold bent to the exact shape and dimensions shown on the approved drawings.

Sect. S 3.3 PROTECTION. Steel for reinforcement shall be new unruined stock, free from oil, paint, dirt, or loose scale, delivered without rust, other than may have accumulated in transportation to the work. It shall be thoroughly protected from moisture at all times, until placed in final position. Ends of bars that are to be left projecting for a considerable time shall be painted with a heavy coat of neat cement grout. Any steel which shows scaly rust after being placed shall be rendered wire brush clean immediately prior to the pouring of concrete.

Sect. S 3.4 PLACING REINFORCEMENT. Reinforcement including dowels, shall be placed in the exact positions and with the spacings shown or ordered, and it shall be fastened in position so as to prevent its becoming displaced during the placing of concrete. At all wall intersections, reinforcement shall be made continuous with adequate splices and/or hooks as shown or ordered.

Where reinforcement crosses construction joints, openings in the form shall be provided and the space in such openings not filled by reinforcement shall be covered by strong tar paper or other adequate filler, so that a perfect joint may be formed.

Sect. S 3.5 SPLICING. Maximum lengths of bars shall be used wherever possible. Where splices are necessary bars shall be lapped 24 bar diam to develop the full strength of the bar by bond. Splices on adjacent bars shall be staggered. In slabs and beams splices of reinforcement shall not be placed at points of maximum stress.

Adjacent sheets of welded wire fabric shall be spliced by lapping at least one mesh, i.e., the length of lap should be at least equal to the spacing of wires parallel to the lap (measured as the distance between the outside wires parallel to the lap).

Welding of reinforcement shall conform to AWS Standards or as approved.

Sect. S 3.6 CHAIRS. Chairs and approved spacing devices shall be used to hold reinforcement in correct relationship and at the required distance from the forms. Cement briquettes shall be used for concrete poured on earth or polyethylene film covered foundation material.

SECTION S 4STRUCTURAL STEEL AND MISCELLANEOUS METAL WORK

Sect. S 4.1 STRUCTURAL STEEL. Structural steel shall conform to the requirements of ASTM Designation A 7, and bolts and nuts to ASTM Designation A 307.

Bolt dimensions shall conform to the requirements of ASA Standard B18.2 for Regular Semifinished Hexagon Bolts. Nut dimensions shall conform to the requirements of ASA Standard B18.2 for Heavy Semifinished Hexagon nuts. Washers shall be flat and smooth, conforming to the requirements of ASA Standard B27.2.

Sect. S 4.2 STEEL DESIGN, WORKMANSHIP, AND ERECTION. The design, workmanship and erection of structural steel shall conform to the requirements of the Code of Standard Practice for Steel Buildings and Bridges, and the Specification for the Design, Fabrication and Erection of Structural Steel for Buildings, of the AISC. Where sizes of structural elements are not shown, the minimum thickness of steel shall be 5/16 in.

Shop connections shall be made by welding and field connections shall be made by bolting.

In general, welding of steel members shall conform to the applicable standards of the AWS for metal-arc welding. Welding procedures shall be qualified in accordance with the Standard Qualification Procedure of the AWS and welders shall have passed the latest tests for Operator Qualification of the AWS.

Oxy-acetylene torches shall not be used for burning holes. Structural steel shall not be cut in the field except with written approval, in which case it shall be done with an oxy-acetylene torch.

Sect. S 4.3 STEEL HANDLING AND STORAGE. Structural steel shall be transported, handled, and stored in a manner which will prevent rusting and damage thereto.

Sect. S 4.4 STEEL GALVANIZING AND PAINTING. All structural steel work shall be galvanized and finish painted as specified in Section S 7.

Sect. S 4.5 FRAMES AND COVERS. Manhole frames and covers on the filters shall conform to the details shown. Frames shall be of the best quality close grained gray iron castings conforming to the requirements of ASA Standard A35.1, and shall be properly cleaned and coated with a waterproof asphaltum applied by immersion, while the castings are hot. Aluminum covers shall be of alloy 6061-T6. The outer covers shall be furnished with pick holes, and the inner covers shall be furnished with aluminum handles welded to the cover plates.

Manhole frame and cover, for the Septic Tank, shall be of the best quality close grained gray iron castings as specified hereinbefore, and shall be equal to Campbell Foundry Co. Catalog No. 1206 manhole frames and covers.

Slab type frames and covers shall be of the best quality close grained gray iron castings as specified hereinbefore, and shall be equal to Campbell Foundry Co. Catalog No. 1729 slab type frame and cover for the Meter Chamber and Catalog No. 1739 slab type frame and cover elsewhere.

Sect. S 4.6 DRAIN INLETS. Drain inlets shall be of the best quality close grained gray iron castings conforming to the requirements of ASA Standard A 35.1, and shall be properly cleaned and coated with a waterproof asphaltum applied by immersion, while the castings are hot. Drain inlets shall be as detailed, and conform to the requirements of the Department.

Sect. S 4.7 SAFETY TREADS. On all concrete stairs abrasive metal safety treads, conforming to the details shown, shall be cast integrally with the stairs. Safety treads shall have a hatched surface and cast-on anchors, and shall be equal to American Abrasive Metals Co., Alumalun Style A.

Sect. S 4.8 STAIR TREADS. Stair treads shall be equal to Irving Subway Grating Co., Inc. Vizabledg, X-Bar, Press-Locked, Type AA, aluminum with abrasive nosing tread, furnished with end plates suitable for bolting to stringers. Type 316 stainless steel bolts, nuts, and washers shall be furnished to bolt stair treads to stringers.

Sect. S 4.9 STOP LOG GROOVES. Stop log grooves shall be equal to Neenah Foundry Co. R-7500 Series, Type A cast iron grooves.

Sect. S 4.10 STRUCTURAL ALUMINUM. Aluminum structural shapes and plates shall be of alloy 6061-T6. All aluminum fastenings shall be type 316 stainless steel bolts, nuts, and washers.

Sect. S 4.11 ALUMINUM GRATING. Grating shall be extruded aluminum alloy 6063-T6 equal to Washington Aluminum Co., Inc. Type No. Bx grating.

Grating shall be of a non-skid type. Grating, frames, and stair treads shall be designed to support a uniform live load of 300 psf. Grating shall be accurately fabricated, free from warps, twists, or other defects which affect their appearance or serviceability. Aluminum grating, frames, anchors, inserts, and accessories shall be provided, as detailed.

Gratings shall be installed in easily removable sections, weighing not more than 150 lb. per section, with all edges banded. Where holes are required in the grating, the Contractor shall band the edges of the holes. Adjacent sections shall be neatly fitted together. The maximum width of grating section shall be 6 ft. Grating shall be set with full and uniform end bearing on aluminum frame to preclude rocking movement. Aluminum frame shall be of alloy 6061-T6 and shall be mitered and welded at corners, and ground smooth. Four Type 316 stainless steel fastening devices shall be installed per section, as detailed, to hold the grating rigidly to the supports with means for easy removal. The fasteners shall not protrude above the walkway surface of the grating. All other grating requirements shall conform to the standards of the Metal Grating Institute.

Sect. S 4.12 SIDEWALK DOORS. Sidewalk doors shall be aluminum and equal to Babcock-Davis Associates, Inc. double or single leaf, gutter type doors. They shall be of the sizes shown and shall have all aluminum frames with formed gutters and 1-1/2 in. pipe drain outlets. Leaves shall have a diamond checkered plate adequately reinforced to support a live load of 300 psf. Hinges shall be brass with stainless steel pins. Approval spiral lift springs shall be provided to counterbalance the weight of the doors and facilitate lifting. Hold-open bars shall be provided on all doors. Doors less than five ft. long shall have a single flush lift handle on each leaf; doors over five ft. long shall have two flush lift handles on each leaf.

Sect. S 4.13 ACCESS DOORS. Access doors shall be aluminum equal to Babcock-Davis Associates, Inc. flush floor hatches. They shall be of the sizes shown and shall have a diamond checkered plate adequately reinforced to support a live load of 300 psf. Doors shall have compensating spring hinges, hold open safety lock bars, and flush lift handles.

Sect. S 4.14 ALUMINUM HANDRAIL. Handrail rails and posts shall be 1- $\frac{1}{2}$  in. diam schedule 40 aluminum pipe of aluminum alloy 6063-T832. Handrail shall be single or double rail, of all welded construction, with joints made continuous, ground smooth, and watertight. Handrail shall be formed, fabricated, and installed as shown and detailed. All bends shall be made true to radius without flattening pipe. Suitable fittings of aluminum alloy 6063-T6, aluminum plates of alloy 6061-T6, and 2- $\frac{1}{2}$  in. diam. schedule 40 pipe sleeves of alloy 6063-T832 shall be provided as shown or required. Drill anchors, as specified in Sect. S 2.25, using type 316 stainless steel bolts, shall be provided for fastening fittings and plates. After handrails are installed in sleeves, approved sand shall be packed into the sleeves and an approved sealer shall be provided to seal the top of the sleeve.

Sect. S 4.15 ALUMINUM LADDERS. Ladders shall be constructed of aluminum alloy 6061-T6, in accordance with the details shown. Rungs shall be placed in holes in stringers and the ends of rungs shall be welded and ground flush. Stringers brackets and supports shall be attached with drill anchors as specified in Sect. S 2.25, using type 316 stainless steel bolts.



SECTION S 5PIPE

SECT. S 5.1 PRESTRESSED REINFORCED CONCRETE PIPE. Prestressed reinforced concrete pipe, specials, and fittings shall conform to the requirements of AWWA C301, embedded cylinder pipe, with rubber and steel joints. Specials shall be Type A or Type B. Type B specials shall have a maximum steel stress of 12,500 psi. A bituminous seal coat shall be applied to the inside of the pipe after curing. Pipe shall be manufactured by a manufacturer having at least 5 years successful experience in making this type of pipe.

The Contractor shall submit a tabulated layout schedule and a complete design, prepared on 8-1/2 in. by 11 in. sheets, for the pipe. The design shall include design analysis, reference data, and sketches. The Contractor shall furnish the required number of copies for approval.

The design of the pipe shall be such that zero-compression pressure of the pipe is not less than 1.25 times the design pressure. Design pressure shall be 20 psi, except as otherwise noted. Heavy wall pipe shall have the wall thickness noted.

Pipe, specials, and fittings shall be designed for:

(a) the design pressure specified or noted.

(b) Live load consisting of two rear wheels of two passing trucks, the inside wheels of which are spaced 3 ft on center. Trucks shall be assumed to be AASHTO Standard H-20 trucks. No additional allowance shall be made for spreading of loads under pavements.

(c) earth loads computed on the basis of the following formula:  
 $W = 165 H B_c$ , where W equals the total earth load on the pipe in lb per lin. ft. of pipe, H equals the depth of earth cover over the pipe (obtained from the drawings), and  $B_c$  equals the outside diameter of the pipe.

(d) bedding factor of 2, and no account shall be taken for either active or passive lateral earth pressures.

The bell ring shall be flared to permit gradual deformation of the gasket when the joint is assembled. The joint depth shall be at least 4-1/4 in. The thickness of the spigot ring shall be at least 3/8 in. between the gasket groove and a point one in. into the concrete encasement. Each spigot and bell ring shall be fabricated from a single piece of steel. The bells shall be a minimum of 1/4 in. by 6-1/2 in. and the spigots a minimum of 7-1/4 in. wide.

Sect. S 5.2 REINFORCED CONCRETE PIPE. Reinforced concrete pipe, except for manhole barrels, shall conform to the requirements of ASTM Designation C 76. The pipe shall be designed for the following strength requirements based on the three-edge-bearing method test for load to produce a 0.01 in. crack and for ultimate load:

0.01 in. crack - 8,000 lb. per lin. ft., and  
ultimate load - 12,000 lb. per lin. ft.

Specials and fittings, except for manhole barrels, shall conform to the requirements of AWWA Specification C302, Type A specials and fittings, and shall conform to the strength requirements specified hereinbefore.

Reinforced concrete pipe and fittings for manhole barrels shall conform to the requirements of ASTM Designation C 76 for Class II pipe, Fitting requirements shall be based on the larger diameter requirements.

Selection of wall thickness of all pipe and fittings, shall be optional, but the reinforcement shall correspond to the wall thickness selected. Only circular reinforcement will be approved.

All reinforced concrete pipe and fittings shall be provided with joints for rubber gaskets equal to Riblock. Pipe shall be furnished in lengths of not less than 8 ft. except as otherwise shown.

Sect. S 5.3 CAST IRON PIPE. Cast iron pipe and fittings shall be flexible joint, flanged, or threaded. In general, flexible joints shall be used for outside pipe, and flanged joints shall be used for inside pipe, except as otherwise shown. Cast iron pipe shall conform to the requirements of ASA Standard A21.6 or A21.8, for Thickness Class 22.

Flexible joint pipe shall be mechanical joint or equal to United States Pipe and Foundry Co. Tyton Joint.

Mechanical joint fittings shall conform to the requirements of ASA Standard A21.10 for fittings up to and including 12 in. in size and shall be equal to the fittings shown in Section 10 of the Cast Iron Pipe Research Association's "Handbook of Cast Iron Pipe" for fittings larger than 12 in. in size.

Flanges and flanged fittings shall conform to the requirements of ASA Standard B16.1. Where noted or required, AWWA fittings and other special fittings shall be installed.

Threaded joints shall be made up with thread lubricant equal to Crane Co. lubricant.

All pipe and fittings shall have a cement mortar lining conforming to the requirements of ASA Standard A21.4. Pipe and fittings furnished for applications other than buried pipe shall not receive an outside protective coating, but shall be painted as specified in General Specifications Section S 7.

Sect. S 5.4 CAST IRON SOIL PIPE. Cast iron soil pipe and fittings shall conform to ASA Standard A40.1 for extra heavy hub and spigot end pipe. An approved calking compound shall be used for making joints.

Sect. 5.5 WROUGHT-IRON PIPE. Wrought-iron pipe shall be galvanized for pressure water pipe and black for all other pipe, and shall conform to the requirements of ASTM Designation A 72, for extra-strong pipe.

Buried pipe shall have threaded and coupled ends. Sand pipe, which is not buried, shall have cast iron flanged ends, with flanges conforming to the requirements of ASA Standard B16.1. Pipe, other than sand pipe, which is not buried shall have threaded and coupled ends. Fittings for sand pipe, which is not buried, shall be flanged fittings conforming to the requirements of ASA Standard B16.1. Fittings for pipe other than sand pipe, which is not buried,

and for buried sand pipe shall be galvanized cast iron screwed fittings conforming to the requirements of ASA Standard B16.4, for 125 lb. fittings.

Threaded joints shall be made up with thread lubricant equal to Crane Co. lubricant. Unions shall be provided for disconnection where required.

Both galvanized and black pipe and fittings shall be painted as specified in General Specifications Section S 7.

Sect. S 5.6 STEEL PIPE. Steel pipe shall conform to the requirements of ASTM Designation A 134, ID, 3/8 in. nominal wall thickness. Fittings shall be fabricated and conform to the ASME Code for Unfired Pressure Vessels. Inside and outside surfaces of pipe shall be painted as specified in General Specifications Section S 7.

Sect. S 5.7 COPPER TUBE. Copper tube and fittings shall conform to the requirements of ASTM Designation B 88, Type K for buried service and Type L for interior applications. Type K tube shall be annealed and used in conjunction with cast bronze flared tube fittings. Type L tube shall be drawn and used in conjunction with cast bronze solder fittings.

Sect. S 5.8 CLAY PIPE. Clay pipe and fittings shall conform to the requirements of ASTM Designation C 200, for extra strength pipe, and shall have flexible joints, unless otherwise noted as open joints.

Gaskets equal to Amvit, Wedge-Lock, or Presto-Seal shall be used for making flexible clay sewer pipe joints.

Split clay pipe for filter underdrains, shall conform to the requirements of ASTM Designation C 13, furnished in 2 ft. lengths, and laid with approximately 3/4 in. open joints. The outer end of each line shall be closed by placing bricks against the end. Bricks shall have a loose fit to allow the entrance of water. The Contractor shall maintain the pipes in line, with joints properly spaced until the underdrains are completely surrounded by gravel.

Sect. S 5.9 COUPLINGS. Couplings for pipe shall be installed where shown, specified, or required. Type 'A' couplings shall be equal to Dresser Manufacturing Division Style 38 couplings. Type 'B' couplings shall be equal to Victaulic Co. of America, Style 77-Y with Y-insert gasket coupling for grooved end pipe.

Sect. S 5.10 EXPANSION JOINTS. Expansion joints for pipe shall be installed where shown, specified, or required.

Expansion joints shall be of the internally guided, packless type, suitable for 125 lb. pressure unless otherwise specified. The traverse shall be adequate for the maximum estimated expansion movement. Unless otherwise specified, the expansion joints on pipe lines 2 in. or smaller shall be all brass with screwed ends, and on lines 2-1/2 in. and larger, they shall be of the iron body pattern with flanged ends and covered brass expansion element. They shall be equal to Flexonic, Adisco, or Zallea.

Sect. S 5.11 HANGERS AND SUPPORTS. Pipe hangers and supports, where shown or required, shall be carefully located and adjusted so as to maintain the pipe in proper alignment without causing any undue strain in the pipe or in any equipment. Sufficient hangers and supports shall be installed to provide a working safety factor of not less than twelve for each hanger, assuming the pipe is filled with water. In general, the maximum hanger spacing shall be 12

ft. Except when otherwise shown, specified, or required, hangers, supports, anchors, and malleable iron concrete inserts shall be galvanized equal to Crane Co. or Grinnell Co. Inc., standard types. Where required, hangers and supports shall be screw adjustable after installation. Galvanized materials shall be finish painted, as specified in General Specifications Section S 7.

Where temporary supports are used, they shall be sufficiently rigid to prevent shifting or distortion of the pipe.

Sect. S 5.12 SLEEVES AND CASTINGS. Where cast iron pipe passes through walls and floors, the Contractor shall furnish and install cast iron sleeves or wall castings.

Where pipe other than cast iron passes through walls and floors, the Contractor shall furnish and install schedule 40 steel sleeves.

All sleeves and castings shall have intermediate flanges.

Sleeves shall be packed, and calked with an approved calking compound.

Sect. S 5.13 PIPE LAYING AND INSTALLATION. All pipe and fittings shall be installed to the lines and elevations shown or ordered.

The Contractor shall excavate the trench below the pipe invert, to the limits shown or ordered, and place the pipe on foundation material, sand fill for shaped trenches, special compacted foundation, or concrete.

In rock trench, pipe shall be supported near each end upon temporary hardwood blocks of proper thickness laid up to the bottom of the pipe and supported on each side by wedges driven tight or as ordered. The bedding of the pipe in foundation material, special compacted foundation, or concrete, shall be in accordance with the details shown and ordered. The temporary hardwood blocks shall be removed after the foundation material is placed and tamped.

Suitable tools and equipment shall be used for proper handling, storing, and laying pipe and fittings. In order to avoid damage to the interior linings or coatings of pipe, lifting hooks or bars shall not be inserted therein. All pipe and fittings shall be checked for defects and injuries as laying proceeds. Imperfect pipe materials shall be rejected and removed from the work. Pipe found to be defective after laying shall be removed and replaced by undamaged material.

The interior of each pipe shall be cleaned of dirt and other deleterious materials, and kept clean, as the next section of pipe is laid. During the progress of the work, the exposed ends of the pipe shall be provided with approved temporary covers fitted to the pipe so as to exclude undesirable matter.

Where pipe must be cut to fit as closing pieces, such cuts shall be evenly and squarely made in a workmanlike manner with approved equipment. Injury to linings or coatings shall be satisfactorily repaired.

Unless otherwise specified, handling and laying of buried cast iron pipe shall comply with the methods described in Section 5 of the "Handbook of Cast Iron Pipe" of the Cast Iron Pipe Research Association.

Joints must be thoroughly brushed with a wire brush to remove all loose rust or foreign material. Soapy water must be brushed over the joint surfaces

and over the gasket. Bolts shall be tightened uniformly, using only torque-limiting wrenches to avoid overstressing the bolts.

Flanged pipe, 12 in. and smaller, shall be assembled with 1/16 in. full face, red rubber gaskets, and flanged pipe larger than 12 in. with 3/32 in. gaskets. Gaskets shall be equal to Garlock gaskets. Nuts shall be tightened uniformly, using only torque-limiting wrenches to avoid overstressing the bolts. Bolt heads and nuts and all unpainted surfaces of the flanges shall be coated with two heavy applications of black asphaltum varnish.

In general, all buried pipe, other than cast iron, shall be laid in accordance with the requirements of ASTM Designation C 12.

After prestressed reinforced concrete pipe has been laid, and before back-fill, fill, foundation material, special compacted foundation, or concrete is placed for buried pipe, all exterior joint recesses (for inside and outside pipe) shall be filled with a grout composed of one part cement and two parts sand. The Contractor shall provide a recess in foundation material and special compacted foundation for buried pipe, at joints to insure complete grouting of joint exteriors. The inside joint recess shall be filled with a stiff mortar composed of one part cement and two parts sand, troweled in place so as to produce a continuous smooth, flush surface across the joint. The Contractor shall apply bituminous material over the mortar, so that a continuous seal coat is obtained on the inside of the pipe.

Unless otherwise permitted, all joints of all pipe shall be left exposed for inspection and acceptance by the Engineer, prior to mortaring.

Sect. S 5.14 TESTING. The Contractor shall conduct tests for strength hydrostatic pressure, and exfiltration on selected lengths of pipe prior to furnishing the pipe to be used, and during construction as specified herein. Tests shall be witnessed by the Testing Laboratory.

Strength tests for prestressed reinforced concrete pipe and reinforced concrete pipe shall be based on the three-edge-bearing method test for load to produce a 0.01 in. crack and for ultimate load. Tests shall be made on one length of each size of prestressed reinforced pipe and on one length of the filter drain reinforced concrete pipe.

Strength tests for cast iron pipe shall be made by ring tests. Not less than 2 percent of the number of pipe of each size shall be tested, except that not less than one test nor more than 5 tests for each size shall be required.

Prior to construction, the Contractor shall make a laboratory hydrostatic pressure test on one joint, without mortar packing, of 42 in. and 60 in. prestressed reinforced concrete pipe. Tests shall be made on the joint in a deflected position, with the joint butted on one side and with a 5/8 in. opening on the diametrically opposite side, at an internal water pressure equal to 70 psi, and shall show no visible leakage over a period of 24 hours.

In the event that the prestressed reinforced concrete pipe shows any visible cracks, or pipe and pipe joints fail to meet the previously specified tests, the pipe design or joint details shall be revised as approved, and additional tests shall be made at the Contractor's expense, until satisfactory results are attained.

All pressure pipe shall be subjected to hydrostatic pressure tests. Pressure water pipe, all pipe connected to the pressure water system, sand pipe, and pipe for valve cylinder operation, shall be subjected to hydrostatic pressure tests of 250 psi. All prestressed reinforced concrete pipe shall be subjected to hydrostatic pressure tests of 70 psi. All other water pipe, West Parish Filter Conduit, and fuel oil pipe shall be subjected to hydrostatic pressure tests of 50 psi. The duration of each test shall be not less than 2 hours.

Sand bin drain, 30 in. drain, sand bin overflow, surface drain, and sanitary sewer pipe shall be subjected to exfiltration tests under an internal water pressure of 10 ft. The duration of each test shall be not less than 24 hours.

The Contractor shall provide the necessary facilities, bulkheads, gages and labor, and the City will provide water for tests. Accurate pressure gages shall be installed at approved, convenient points in the pipes for observation. Leakage and exfiltration shall not exceed 60 gpd per in. of internal diam per mile of pipe. If leakage or exfiltration exceeds this amount, the Contractor shall do whatever is necessary to reduce leakage or exfiltration to this amount. The Contractor shall not utilize the sluice gate at the Intake Structure for testing procedure.

Sect. S 5.15 DISINFECTION. All raw water, filtered water, pure water, pressure water, plant water, valve cylinder, sand, and filter underdrain pipe shall be thoroughly flushed and disinfected before being placed in service. Flushing and disinfecting shall conform to the requirements of AWWA Specification C601.

SECTION S 6VALVES

Sect. S 6.1 PIVOT VALVES. Pivot valves shall be Chapman Valve Manufacturing Co. List 37 Dow disc-arm pivot valves. Each valve body shall be cast iron, with cast iron deflector bolted inside of the body at the top and the lower side of deflector machined to match the arm on the disc. The disc shall be a single cast iron casting, reinforced with heavy internal ribs, accurately machined to fit tightly in the babbitt seat in the body. The operating arm shall be hollow and cast integral with the disc. The main spindle shall be forged steel, and shall be pressed into the disc. Heavy renewable bearings shall be provided for all movable parts. Bearings for main spindle shall have adjustable rings bearing against bronze washers in the ends of the disc hubs. Spindle bearings shall be provided with fittings for force feed lubrication. Bronze bearings shall be provided in the arm of the disc and in the crosshead and in the ends of the connecting rod. The pins in the ends of the connecting rod shall be rolled bronze. The crosshead guide shall be cast iron, securely bolted to top of body, and lined with seamless bronze tube. The crosshead shall be cast iron, provided with packing to prevent leakage up through the crosshead guide. The rod connecting the disc arm to the crosshead shall be of forged steel with an eye at each end fitted with heavy bronze bushings. Castings shall be spot-faced for all bolts and nuts.

Pivot valves shall be operated by hydraulic cylinders. Cylinders shall be Chapman Valve Manufacturing Co., cast iron, bronze lined cylinders, with tail rods, having a maximum inside diameter of  $6\frac{1}{2}$  in. Cylinders shall be designed to operate under a pressure of 100 psi, and shall be tested at a pressure of 150 psi. Cylinders shall be made of castings which are accurately machined inside, with a bronze tube pressed in to give a smooth and non-cutting surface for the piston.

Each 30 in. pivot valve shall be furnished with an electrically operated valve position indicator, as specified in Sect. 26.3, with transmitter mounted on the cylinder as approved, and position indicator calibrated for valve opening in percent, from 0 to 100, and mounted in the valve control panel. One portable auxiliary hand pump shall be furnished to provide not less than 100 psi for operating valves. The pumps shall be furnished with a bypass valve, piped discharge to suction, set at 100 psi. The Contractor shall also furnish 20 ft. of suction and discharge hose. Hose ends and tees on cylinder pipe at solenoid valves shall be equipped with Aeroquip 5100 series self-sealing coupling assemblies.

The 36 in. pivot valve shall be furnished with a schedule 10 steel pipe floatwell, having  $\frac{1}{2}$  in. thick bottom steel plate, galvanized and finish coated as specified in General Specifications Section S 7. The well shall be tapped for inlet and drain connections. The float to operate the pilot valve, float rod, float guides, counterweight, counterweight and pulley brackets, pulleys, and cables shall be provided by the Contractor. The pivot valve shall be positioned by means of a float operated compensating control pilot valve, to maintain level in filters at Elevation 465.00, and shall be field adjustable. The float and pilot valve shall be arranged so that the pivot valve is closed at Elevation 465.00 and is fully open at Elevation 464.67. One wall mounted auxiliary hand pump shall be provided, connected as shown, to permit manual operation of the valve in event of loss of pressure in the power water system. The hand pump shall be a rotary type, reversible, and suitable for operating the valve with less than 40 lb. of force applied to the handle. All pivot valve appurtenances shall be equal, as approved, to the existing appurtenances in Filter Regulator House 11-14.

Sect. S 6.2 GATE VALVES. All gate valves shall be Chapman Valve Manufacturing Co. inside screw valves, conforming to the specifications of the Department. Valves 3 in. and smaller, except for valves for air vent assemblies, shall be List 1 valves, with screwed ends, and hose nipples where noted. Valves for air vent assemblies shall be List 1 drip valves. Valves 4 in. to 8 in. inclusive shall be List 59-1/2 valves. Valves larger than 8 in. shall be List 58-1/2, drilled to ASA 125 lb. standard. Where noted, valves shall be furnished with enclosed bevel or spur gears.

Valves shall have flanged ends unless otherwise shown, noted, or specified.

Sect. S 6.3 GLOBE VALVES. Globe valves shall be Chapman Valve Manufacturing Co. Fig. 57 rising stem bronze globe valves, with renewable composition discs, and having screwed ends.

Sect. S 6.4 CHECK VALVES. Check valves shall be Chapman Valve Manufacturing Co. List 20 swing check valves, furnished with screwed ends.

Sect. S 6.5 PLUG DRAIN VALVES. Plug Drain valves shall be iron body, bronze mounted, equal to James B. Clow & Sons No. F-3075 Eddy plug drain valves with non-rising stems and flanged ends.

Sect. S 6.6 BALL VALVES. Ball valves shall be equal to The Fairbanks Co. 250-lb. lever operated Sphero ball valves with screwed ends and bronze balls.

Sect. S 6.7 SOLENOID VALVES. Solenoid valves shall be equal to Automatic Switch Co. Bulletin 8347, Catalog No. WP83472 solenoid valves, 3 position 4 way valves, with dual solenoids, closed center position, resilient seats, of completely watertight packless construction, and conduit connection integral with the solenoid chamber. Enclosures shall be NEMA IV watertight cast enclosure. Coils shall have high temperature resistant insulation and shall be suitable for continuous duty at 120 volt, single phase, 60 cycle service under severe moisture conditions. Unions shall be provided on each side of each solenoid valve.

Sect. S 6.8 HOSE BIBBS. Hose bibbs shall be Chapman Valve Manufacturing Co. List 7, Fig. 18 bronze gate valves. Each hose bibb shall be provided with a brass cap and chain. Hose bibbs shall be located 3 ft. above the floor level.

Sect. S 6.9 CURB AND CORPORATION STOPS. Curb stops shall be equal to Mueller Co. No. H-10203 stops and shall be furnished with a screwed plug at one end of the stop.

Corporation stops shall be equal to Mueller Co. No. H-9976 stops.

Sect. S 6.10 VALVE APPURTENANCES. The Contractor shall furnish and install all required valve appurtenances, including couplings, extension stems, approved stem guides spaced not more than 8 ft. on centers, operating nuts, handwheels, floor boxes, valve boxes, curb boxes, and service boxes, all conforming to the requirements of the Department.

Buried gate valves shall be furnished with couplings, extension stems, operating nuts, and valve boxes. Curb stops shall be furnished with curb boxes.

Valve boxes, curb boxes, and service boxes, shall be set flush with the finished grade. Extension stems for buried valves shall be of sufficient



length to permit setting operating nuts 6 in. below the top of the valve box cover. Stationary rods for curb boxes shall be of sufficient length to end 6 in. below finished grade. Extension stems within floor box covers shall be of sufficient length to permit setting operating nuts 3 in. below the top of the floor box cover.

Floor boxes within the Regulator House shall be equal to Jay R. Smith Series 504 water tight deck plugs, provided with one spanner wrench, and set flush with the top of tile. Other floor boxes shall be as approved.

Valve boxes shall be of special design approved by the Department, and shall be purchased at the Colton Street Yard.

Curb boxes shall be equal to Mueller Co. No. H-10334 and shall be furnished with stationary rods.

Sect. S 6.11 VALVE STEMS AND EXTENSION STEMS. Valve stems and extension stems for valves 3 in. and larger, shall be of bronze conforming to the requirements of ASTM Designation B 147, Alloy 8A or B 132, Alloy A. Stems shall be of a suitable size to provide for the satisfactory operation of the valve under all conditions. Threads shall be of the square or Acme type unless otherwise required or permitted, and shall be cut smooth and true.

Sect. S 6.12 PAINTING. Both inside and outside surfaces of all ferrous work on valves shall be thoroughly cleaned at the shop. For buried valves, the outside surfaces shall be given two coats of an approved asphaltum varnish. For valves which are not to be buried, the outside surfaces shall be painted in the same manner as the pipe with which they are to be used. The inside ferrous surfaces of valves shall be given two coats of an approved asphaltum varnish.

Sect. S 6.13 MARKING VALVES. All valves shall have the size of the opening, the name of the maker, and the working water pressure for which they are designed, cast in raised letters upon the body of yoke.

SECTION S 7COATINGS

Sect. S 7.1 COATING MANUFACTURE. Coatings shall include all coating and painting materials. Coatings and ingredients of coatings to be mixed on the job shall be prepared, packaged, labeled, and guaranteed by an approved manufacturer. The manufacturer of a proprietary product may be required to periodically instruct workmen in the proper application of his product.

Sect. S 7.2 SAMPLES. Two one-quart samples of each required kind of coating, paint, finishing material, or the ingredients thereof, when they are to be mixed on the job, shall be delivered to the Engineer for approval, together with the certificate of the manufacturer stating the actual percentage by weight of all ingredients entering into the mixture.

No coating shall be used until the Engineer has given written approval of the manufacturer's sample.

Sect. S 7.3 STORAGE. Coatings, paints, thinners, and solvents shall be stored at the site in an approved location and manner.

Sect. S 7.4 SAFETY REQUIREMENTS. The coating specifications include materials which are toxic or hazardous, and necessary safety requirements shall be observed as directed by the coating manufacturer and conforming with the safety precautions of SSPC-PA Specification No. 1.

Sect. S 7.5 FIELD PAINTING. All surfaces to be coated shall be finish coated in the field, except as otherwise specified. The color of the finish coats shall be as selected by the Engineer.

Sect. S 7.6 PREPARATION OF FERROUS METAL SURFACES. All ferrous metal surfaces, including pipe, pipe supports, equipment, and structural steel shall be properly cleaned and prepared for coating.

Cleaning methods specified for surface preparation shall remove all dirt, rust, scale, loose rust, loose mill scale, welding flux and scale, oil, grease, and all other detrimental foreign matter which may impair the adhesion of the paint to be applied. Weld projections or irregular portions of welds, which will interfere with the proper coating shall be ground smooth, as approved.

All ferrous metal surfaces shall be blast cleaned conforming to the requirements of SSPC-SP Specification No. 6.

Where approved, pickling of ferrous metal surfaces may be substituted for blast cleaning. Pickling and priming shall conform to the requirements of SSPC-SP Specification No. 8.

Where, in the opinion of the Engineer, it is not possible or practical to blast clean or pickle, ferrous metal may be descaled by wire brushing conforming to the requirements of SSPC-SP Specification No. 3, and the coating thicknesses increased as approved.

Removal of grease, oil, wax, tar, and other organic contaminants shall be by solvent cleaning conforming to the requirements of SSPC-SP Specification No. 1.

Ferrous metal surfaces shall be shop primed in accordance with the applicable coating system specified.

Primed ferrous metal surfaces damaged by handling, field assembly, or welding shall be reprimed in conformance with the coating system specified for the surface after blast cleaning or wire brushing the damaged area, as approved.

Sect. S 7.7 APPLICATION TO FERROUS METAL SURFACES. The paint application requirements of SSPC-PA Specification No. 1 shall govern on procedures and requirements not specifically covered by manufacturer's instructions and shall constitute the minimum standards for coating of ferrous metal surfaces. All coatings shall be applied by workmen expert with the coating systems specified herein.

Coatings shall be applied by brushing or spraying or a combination of these methods, unless otherwise specified.

Each coat of paint shall be applied as a continuous film of uniform thickness, free of pores, to the maximum extent practicable. Any thin spots or areas missed in the application shall be repainted and permitted to dry before the next coat is applied.

Sect. S 7.8 FERROUS METAL SURFACES. Ferrous metal surfaces (except for buried pipe) shall be coated with not less than 10 mils of a high solids content hot spray vinyl coating, equal to Corrosion Control Co. Inc. Corrotrol No. P-30 primer and Corrotrol No. 60 coating. The coating shall be applied in not less than 3 coats.

Sect. S 7.9 ALUMINUM. Aluminum in contact with concrete, masonry, or dissimilar metals shall be thoroughly protected cathodically by means of a heavy application thereon of an approved permanent bituminous material or approved insulating product.

Sect. S 7.10 INTERIOR MASONRY SURFACES. Interior masonry walls and ceilings of the Regulator House shall be coated with not less than 5 mils of an approved chlorinated rubber-base coating. The coating system shall be a three coat system consisting of a primer and two matte finish coats.

Sect. S 7.11 INSULATION. Insulation shall be coated with glue sizing or a primer sealer before application of finish coat. Primer sealer shall be equal to Pittsburgh Plate Glass Co. Snolite Quick Drying Wall Sealer 50-5. Finish coats shall be the same as used for adjacent surfaces unless otherwise ordered.

Sect. S 7.12 PIPE COLOR CODING. Exposed pipe, fittings, valves, and insulation shall be painted for identification in accordance with the Board's requirements.

Sect. S 7.13 FAILURES. Any failures or breakdowns, loosening of the paint or coatings, within one year after acceptance of work, shall be made good by the Contractor regardless of the coating systems used. This will require removal of entire coatings where failure occurs. Patch work will not be permitted.

Sect. S 7.14 GALVANIZING. Galvanizing shall be done by the hot-dip process in accordance with the specifications of the AHDGA. Surfaces to be

galvanized shall be sand or grit blasted or satisfactorily prepared by other approved methods, including thorough cleaning using suitable solvents, wire brushing and a final pickling just before galvanizing. Zinc coating shall not be less than 2 ounces per sq. ft. of surface.

Galvanizing shall be done in a plant having satisfactory supervised facilities for producing quality coatings and ample capacity for the work required to be done.

All galvanized articles, after galvanizing, shall be handled, shipped, and erected in such a manner as to preclude any damage to the zinc coating until such time as the maintenance period terminates. Any zinc coating which is damaged before said time shall be repaired, or the galvanized article replaced, to the satisfaction of the Engineer.

Sect. S 7.15 FINISH PAINTING OF GALVANIZED ARTICLES. All galvanized articles shall be finish painted with not less than 6 mils of a hot spray vinyl, as specified in Sect. S 7.8. The coating shall be applied in not less than 2 coats.

Prior to painting, the Contractor shall degrease the galvanized materials, by solvent cleaning conforming to the requirements of SSPC-SP Specification No. 1, and shall prime the surface with a washcoat conforming to the requirements of SSPC-PT Specification No. 3.

SECTION S 8ELECTRIC MOTORS

Sect. S 8.1 CAPACITY AND RATINGS. Motors shall be of sufficient capacity to operate the driven equipment under all conditions of operation without loading beyond their rated name plate current or power.

The ratings of the motors offered shall be in no case less than the horsepower noted or specified for the equipment they are to drive. Both the ratings and characteristics of the motors shall be suitable for the successful operation of the equipment drive, under maximum load conditions, without exceeding the specified temperature limits of the motors.

Unless otherwise specified, motors with ratings in excess of 1/3 hp shall be suitable for operation on 208 volt, 3 phase, 60 cycle a-c; motors of 1/3 hp or less shall be suitable for operation on 120 volt, single phase, 60 cycle a-c.

Temperature ratings and safety requirements of motors (based on continuous operation at maximum ambient temperature of 40 deg. C) shall be as follows:

- (a) open or dripproof, rated at 40 deg. C rise,
- (b) splashproof or weatherproof, rated at 50 deg C rise, and
- (c) totally enclosed, fan cooled or non ventilated, rated at 55 deg. C rise.

Sect. S 8.2 TYPES OF MOTORS. All motors shall be of a type approved for starting characteristics in ruggedness as may be required under the actual conditions of operation and unless otherwise specified shall be for full voltage starting.

Sect. S 8.3 GENERAL DESIGN OF MOTORS. Motors shall comply in all respects with the NEMA Standards for Motors and Generators unless otherwise specified.

Motor windings shall be braced to withstand successfully the stresses resulting from the method of starting. The windings shall be thoroughly treated with approved insulating compound suitable for protection against moisture, salt air and slightly acid or alkaline conditions.

Bearings shall be of the self lubricating type, designed to insure the proper alinement of rotor and shaft and to prevent leakage of lubricant.

Sect. S 8.4 MOTOR TERMINAL BOXES AND LEADS. The motors shall be furnished with suitable conduit terminal boxes of ample size to provide for making and housing the connections and with flexible leads of sufficient length to extend for a distance of not less than 4 in. beyond the face of the box. The size of cable terminals and conduit terminal box holes shall be as approved. An approved type of solderless lug shall be furnished.

Sect. S 8.5 CONTROL DATA. The Contractor shall furnish the Engineer with six certified copies of characteristic curves of each size and type of motor furnished and all other data required for designing the control equipment.

Sect. 8.6 MOTOR SHOP TESTS. Motor shop tests shall be made in accordance with the AIEE Test Code of Polyphase Induction Machines.

Complete test reports of each motor installed or copies of routine test reports of electrically duplicate motors shall be furnished.

NEMA Report-of-test forms shall be used.

Sect. S 8.7 PAINTING. Motors shall be given a shop application of paint filler or enamel sealer, a flat coat of undercoater for enamel and two coats of enamel.

SECTION S 9CONDUITS

Sect. S 9.1 GENERAL REQUIREMENTS. Conduits shall be either standard rigid steel conduit with zinc coating applied by the hot dip or sherardizing process, or standard rigid aluminum conduit as specified and approved. All conduit shall comply with the latest requirements of the Underwriter's Laboratories, Incorporated Standards for rigid conduit. Thin wall conduit will not be approved.

Conduit sizes shall be as required for the number and size of wires to be installed. Conduit shall not be smaller than 3/4 in.

Sect. S 9.2 FLEXIBLE CONDUIT. All conduit connections to motors, equipment, and other devices shall be made with flexible conduit. Flexible conduit shall be flexible, liquid tight, electrical conduit having a core of galvanized steel tubing covered with a liquid tight synthetic jacket. Tubing shall be fitted with standard rigid conduit fittings. For conduit sizes up to and including 1-1/2 in. in size, flexible conduit shall be equal to American Brass Co. Sealtite conduit. For conduit sizes 2 in. and larger, flexible conduit shall be equal to American Brass Co. type BD conduit.

Sect. S 9.3 CONDUIT FITTINGS. Conduit fittings for aluminum conduit shall be aluminum. Conduit fittings for steel conduit shall be aluminum or hot dipped galvanized steel and cast iron, as required.

Concealed conduits passing through expansion joints shall be provided with expansion and deflection fittings equal to O. Z. Electrical Manufacturing Co. Inc. Type "EXDS" weathertight expansion and deflection fittings.

Sect. S 9.4 CONDUIT BOXES. Outlet boxes for aluminum conduit shall be aluminum. Outlet boxes for steel conduit shall be aluminum, hot dipped galvanized steel, or hot dip galvanized cast iron, as specified. Outlet boxes exposed or concealed in concrete, shall be cast iron or cast aluminum of approved type, drilled and tapped for threaded conduit connections. Outlet boxes concealed in hung ceilings or interior partitions may be of stamped sheet steel or aluminum construction as approved.

Pull and junction boxes, having a dimension greater than 10 in. shall be fabricated from 10 gage galvanized sheet steel or aluminum. Steel boxes shall be welded prior to galvanizing to provide water-tight joints. Boxes shall have flanged cover openings, welded on mounting lugs, and drilled for conduit openings. Boxes to be painted inside and outside in accordance with Section S 7.

Stamped sheet steel boxes shall be of the knockout type, not less than 14 gage electro-galvanized sheet steel.

All boxes shall be provided with covers held in place by stainless steel screws and provided with rabbeted or flange neoprene gaskets securely held in place.

Dimensions of outlet, pull and junction boxes for general application shall be in accordance with the requirements of the NEC.

Concrete pull boxes shall be fabricated at the job site or of the pre-cast type, with inserts for cable racks and arms. The Contractor shall furnish and place  $1\frac{1}{2}$  cu. ft. of foundation material in center drain hole.

Sect. S 9.5 INSTALLATION OF CONDUITS. Exposed conduits shall be supported in an approved manner, and spacers shall be used to provide  $\frac{1}{4}$  in. minimum clearance between conduits and supporting surfaces such as walls and ceilings. Supports shall be located at intervals not exceeding 8 ft.

Conduit supports shall be one hole straps, channel and angle hangers, or combinations thereof. Rods for supporting 'trapeze' type hangers shall be at least  $\frac{5}{8}$  in. in diam. All hangers, racks, straps, and hanger accessories shall be aluminum or hot dipped galvanized steel, as approved.

Conduit supports shall be attached to concrete, concrete block, or tile surfaces by machine bolts attached to expansion shield or by expansion bolts held fast by expanded sleeves. Bolts shall have corrosion resistant zinc finishes.

To prevent the trapping of moisture, conduits shall be pitched to drain outlet boxes. Exposed conduits, where trapped, shall be drilled with  $\frac{3}{8}$  in. holes at low spots.

No conduit run shall have more than two 90 degree bends or the equivalent thereof, between pulling points. Field bends shall have an inside radius of not less than nine times the diameter of the conduit. Where bends of less than nine diameters are necessary, and as approved standard factory elbows shall be used.

All conduits, where cut, shall be reamed to remove burrs. No running threads will be permitted at joints. All threaded ends of conduits shall be coated with red lead prior to making of connections, and all screw joints shall be watertight.

The ends of all conduits shall be fitted with approved fittings. Grounding type bushings equipped with molded end fittings or molded rings shall be used where conduits terminate in free-standing structures. Grounding type locknuts shall be used where conduits terminate at sheet steel boxes or sheet steel enclosures. Locknuts shall be installed under bushings in box interiors, in addition to exterior locknuts for conduit terminations at drilled holes in large pull and junction boxes.

All conduits shall be carefully cleaned before and after installation. Inside surfaces shall be free of imperfections which may cause injury to wires and cables.

After erection, each conduit run shall be snaked with a steel band to which shall be attached a tube cleaner. All conduit through which a snake and cleaner will not pass shall be removed and replaced if exposed, or plugged and supplemented by an additional conduit run if concealed.

Aluminum conduit shall be installed so as to avoid contact with material which will cause corrosion of aluminum, or if contact cannot be avoided the aluminum conduit shall be coated at the point of contact as specified in Section S 7.



A protective coating equal to The Aluminum Company of America No. 2 Electrical Joint Compound shall be applied at all locations where direct contact is made by aluminum conduits to copper or copper alloys.

Conduits emerging from floors shall be aluminum and shall be coated as specified in Section S 7. The aluminum conduit shall extend into the concrete such distance as is required to make an embedded joint with the concealed conduit.

Sect. S 9.6 INSTALLATION OF UNDERGROUND CONDUITS. Conduits installed underground shall be arranged and installed in concrete envelopes as shown. Sizes, spacing of conduits, and dimensions of envelopes shall be as indicated. Concrete block or fabricated plastic spacers shall be used for spacing the conduits; conduits and spacers shall be firmly wired together before concrete is poured.

Conduits shall follow straight lines as far as possible. Where deviation from a straight line becomes necessary, bends are to be of sufficient radius for the proper rodding and installation of cable. Where directed, bends shall be made up with standard factory bends or other approved curved sections.

Sect. S 9.7 GROUNDING SYSTEM. All metal casings or supporting frames of electrical equipment such as distribution boards, transformers, panel boards, and free standing control and indication cubicles, shall be thoroughly grounded to a protective grounding system. Conduits at these locations shall be banded together by jumpers attached to the grounding type bushings and the bands connected to the ground bus provided with the equipment. Conduits carrying lighting circuits shall be grounded by grounding type locknuts installed at the panel cabinets, by threaded connections at cast boxes, and by grounding type locknuts installed at stamped boxes.

Motor frames, except where grounding is shown, shall be considered to be grounded by their conduit connections, if rigid conduit is used. Where flexible conduit is used for the motor connection, a copper banding jumper shall be installed between the motor frame and the rigid conduit termination, unless the banding jumper is built into the flexible conduit and a special grounding bushing is used in the connection.

All grounding connections shall be made with the same care as connections of current carrying parts.

Copper bars used for grounding shall be medium hard drawn. Copper bonding and grounding jumpers shall be sized in accordance with the NEC requirements and in no case shall be less than No. 10 gage copper wire.

SECTION S 10CABLES AND WIRES

Sect. S 10.1 MANUFACTURING AND TESTING. All cables and wires shall be made by an approved manufacturer using the most advanced processes and best materials.

The following information for each size of wire and cable shall be submitted to the Engineer for approval:

- (a) name of cable manufacturer;
- (b) minimum insulation resistance in megohms, per 1,000 ft at 15.5 deg C;
- (c) number and size of strands in each conductor;
- (d) conductor insulation in 64th of an inch;
- (e) sheath thickness in 64ths of an inch;
- (f) average outside diameter of bare conductor;
- (g) average overall diameter of finished cable; and
- (h) weight per 1,000 ft of finished cable.

Cable shall be shop tested in accordance with the latest standards and applicable test procedures of the specifications of the IPCEA and certified data shall be submitted in compliance with this requirement. Sample lengths of cable shall be submitted to the Engineer, if requested.

Sect. S 10.2 LOW VOLTAGE CABLES. Low voltage cables shall be single conductor, rubber insulated chloroprene sheathed, and unless otherwise specified, rated not less than 600 volts.

The conductors for low voltage cables shall be tinned annealed copper. All conductors for all circuits shall be of standard construction except #10 and #12.

Buried cable shall be a two-conductor or three-conductor cable, as noted, suitable for direct burial. Insulation shall be heat resistant, type RHW rubber with chloroprene sheath over each conductor and an outer chloroprene sheath suitable for direct burial.

The material and stranding of conductors shall conform to the requirements of ASTM Designation B 33 and B 8. Control wires shall be seven strand No. 12 control conductors.

Rubber insulation shall be heat and moisture resistant with the commercial designation of Type RHW. The insulation shall conform to the requirements of ASTM Designation D 754, and shall have moisture absorption and dielectric properties under moisture conditions as prescribed by the National Board of Fire Underwriters for moisture resistant insulation. Maximum conductor temperatures under both dry and wet conditions shall be 75 deg. C.

Chloroprene sheaths shall conform to the requirements of ASTM Designation D 752.

Sheaths shall be applied directly over and bonded to conductor insulation.

The average thickness of cable insulation and chloroprene sheaths shall be in accordance with Table B.

TABLE B

<u>Cable Type</u>	<u>Size of Conductor AWG</u>	<u>Insulation Thick- ness in 64th of Inch</u>	<u>Sheath Thick- ness in 64th of Inch.</u>
Heat and moisture resistant 600-volts	14 to 10	3	1
	8	4	1
	6 to 2	4	2

Telephone wire shall be 3 conductor, twisted, No. 18 AWG, solid, soft, annealed copper wire insulated with 2/64 in. thick code grade rubber, covered with a weather proofed cotton braid. Wires shall be of the outside type for installation in conduit.

Sect. S 10.3 CABLE AMPERE RATING. The sizes of wire and cable for individual circuits shall be as shown or approved. Wires for lighting and power branch circuits shall not be smaller than No. 12 AWG. Wires of greater size, as shown or required, shall be used to minimize voltage drops where circuit runs are exceptionally long.

Sect. S 10.4 CABLE TERMINATIONS. 600 volt cable of sizes No. 4 AWG and smaller shall be terminated by a clean cut across sheath and insulation with the plane of the cut at right angles to the length of the wire.

600 volt cable of sizes No. 2 AWG and larger shall be terminated by pencilling the sheath and insulation, and applying several layers of rubber splicing tape over a rubber cement to form a seal. The sealed end shall then be covered by two layers of friction tape, with each layer half wrapped. The taped cable end shall then be given four coats of an approved quick drying, insulation varnish.

Wires and cables installed at the site shall be terminated with pressure-tool applied solderless connectors.

Sect. S 10.5 CABLE SPLICES AND TAPS. 600 volt cable shall be spliced or tapped by joining conductors with connectors applied by approved pressure tools, insulating joints with several layers of rubber insulating tape applied over a coating of rubber cement, covering joints with two layers of friction tape with each layer half lapped and waterproofing joints by coating with a quick drying insulation varnish.

Rubber insulating tape shall conform to the requirements of ASTM Designation D 119, and friction tape shall conform to the requirements of ASTM Designation D 69.

Sect. S 10.6 SEALING OF CONDUITS. Where cables enter pull-boxes or incoming line sections from the underground system, conduit ends shall be sealed with oakum packing and plastic, rat repellent sealing compound with provision for drainage. This type of sealing shall be installed where cables enter and leave manholes and underground pull boxes. Unused conduit entrances shall be closed off by spring clip attached, galvanized sheet steel covers which shall be perforated to provide for conduit drainage.

Sect. S 10.7 CABLE IDENTIFICATION TAGS. All circuits shall be identified and tagged. Identifying tags shall be installed on circuits at equipment manholes and in large pullboxes. Tags shall be of an approved plastic and shall have black printed markings on white backgrounds. Tag construction shall be such that markings will remain clear and distinct under severe moisture conditions.

Sect. S 10.8 SERVICE TESTS. Service tests shall be performed on the installed cables prior to putting them into service. 480 volt, 208 volt, and 120 volt circuits shall be tested for insulation resistance of each complete circuit between conductors and between conductors and ground. The insulation resistance value shall be not less than the following:

<u>Circuit Ampere Rating</u>	<u>Insulation Resistance</u>
Up to 5 amperes	2,000,000 ohms
Up to 10 amperes	1,000,000 ohms
Up to 25 amperes	400,000 ohms
Up to 50 amperes	250,000 ohms
Up to 100 amperes	100,000 ohms
Up to 200 amperes	50,000 ohms
Up to 400 amperes and over	25,000 ohms

Any wire or cable showing failure resulting from factory defect, workmanship, installation, or any other cause shall be repaired or replaced, as directed, without any additional cost.

Sect. S 10.9 NUMBER OF WIRES. The number of wires shown for various control circuits has been determined for general schemes of control. The actual number of wires, installed for each circuit shall in no instance be less than the number shown, and the Contractor shall add at his own expense, as many wires as may be required for control and indication of the actual equipment selected for installation.

CONTRACT ITEMS

ITEM 1EARTH EXCAVATION

Sect. 1.1 WORK INCLUDED. Under Item 1, the Contractor shall make earth excavations, as shown, specified, or ordered. The work required includes:

- (a) clearing and grubbing,
- (b) removing existing pavement,
- (c) making earth excavations,
- (d) storing suitable materials for use in replacing topsoil, and backfill, and placing fill,
- (e) disposing of unsuitable and excess material,
- (f) sheeting and bracing,
- (g) dewatering excavations and other parts of the work, including wellpoints if required,
- (h) dewatering existing Wash Water Settling Basin No. 2, and
- (i) all other work required to make earth excavations, with the exceptions of work specifically excluded under Sect. 1.3.

Sect. 1.2 REQUIREMENTS. The Contractor shall not do any work in Wash Water Settling Basin No. 2 until the Intake Structure (Item 23) has been constructed.

The Contractor shall dewater existing Wash Water Settling Basin No. 2 in its entirety, emptying the contents in existing Wash Water Settling Basin No. 3, and adhering to the following provisions:

- (a) no water shall be released during the summer months, and
- (b) the rate and time of release shall be coordinated with the Department, due to the probability of the overflowing of Basin No. 3 with Basin No. 2 contents added, so that provisions will be made for maximum dilution downstream of the basins. The turbidity of the water discharged into the stream shall not exceed 20 ppm. If turbidity exceeds this requirement, the Contractor shall immediately stop releasing water to Basin No. 3 and shall stop construction in Basin No. 2 until turbidity is reduced to 20 ppm. The Contractor shall be responsible for adjusting his operations and/or providing additional settling capacity downstream of Basin No. 3, without any additional compensation, on the Department's property or on private property if the Contractor obtains written permission to do so, so as to meet turbidity requirements.

It is uncertain whether or not the drain pipe from Basin No. 2 to Basin No. 3 is in operating condition, due to infrequent use. The Contractor has the option of using this line in order to dewater Basin No. 2, if he makes necessary approved repairs.

During the dewatering period, the Department will temporarily divert the brook flow, so that all flow goes to Basin No. 3 and no water enters Basin No. 2. The diversion shall be continuous, except for the requirements of subparagraph (b) above, until work is completed on Basin No. 2.

Sect. 1.3 MEASUREMENT. The quantity to be measured for payment under Item 1 shall be the number of cubic yards of earth removed, contained within the planes defined by: (a) the existing ground surface prior to doing any earthwork or construction, (b) the underside of the structure or underside of foundation material for structures, and (c) vertical planes 2 feet beyond the footing of the structure, or vertical wall of the structure where there is no footing, or (d) as shown or ordered.

Earth excavation, which is included for payment under special trench (Item 5), special compacted foundation (Item 7), rip-rap (Item 8), outside pipe (Item 20), outside valves (Item 21), manholes (Item 22), Intake Structure (Item 23), heating and ventilating work (Item 29), and electrical work (Item 30), will not be measured for payment under Item 1.

Sect. 1.4 PAYMENT. The price per cubic yard bid under Item 1 shall cover all costs of making earth excavations, as shown or ordered, including all work specified in Sect. 1.1.

ITEM 2ROCK EXCAVATION

Sect. 2.1 WORK INCLUDED. Under Item 2, the Contractor shall excavate rock, dispose of surplus excavated rock, backfill excavations with suitable material to the original level of the rock, dewater, and protect existing structures, as shown, specified, or ordered.

Sect. 2.2 MEASUREMENT. The quantity to be measured for payment under Item 2 shall be the number of cubic yards of rock greater in size than 1/2 cubic yard, contained within the planes defined by (a) the existing rock surface, (b) the underside of the structure or underside of foundation material for structures, and (c) vertical planes 2 feet beyond the footing of the structure or vertical wall of the structure where there is no footing, or (d) as shown or ordered.

Removing of existing masonry structures, which is included for payment under outside pipe (Item 20), will not be measured for payment under Item 2.

Removing rubble, which is included for payment under Intake Structure (Item 23), will not be measured for payment under Item 2.

Sect. 2.3 PAYMENT. The price per cubic yard bid under Item 2 shall cover all costs of excavating rock and all other work specified in Sect. 2.1, including explosives and safeguards, as shown, specified, or ordered.



ITEM 3SOIL BEARING TESTS

Sect. 3.1 WORK INCLUDED. Under Item 3, the Contractor shall grade the test areas, furnish reactions for tests, and transport and assemble all test equipment for making soil bearing tests, to be performed by a testing laboratory employed by the Board, in the existing fill area as shown, specified, or ordered.

Sect. 3.2 REQUIREMENTS. All soil bearing tests will be performed by a testing laboratory employed by the Board and all equipment for these tests, except for the reaction, will be furnished by the testing laboratory. Grading of test areas and transportation and assembly of equipment shall be under the direction and supervision of the testing laboratory.

Soil bearing tests shall be made, in approximately the center of every 100 ft. by 100 ft. area, to determine the adequacy of the subgrade. Prior to applying loads, the Contractor shall excavate the top 12 in. of material, as specified in General Specifications Sect. S 1.1, and grade test areas so that they are approximately level. Loads will be applied with a calibrated hydraulic jack on a 2 in. thick by 30 in. diam steel plate, and will be applied in 5,000 lb. increments until the soil fails. Readings will be taken at each load increment. Each 5,000 lb. load will be maintained until the soil has adjusted itself to equilibrium, prior to applying an additional load. If the soil does not fail under a maximum load of 50,000 lb. the load will be decreased in 5,000 lb. decrements and readings will be taken at each load decrement.

Deflections will be determined by using three extensometers, calibrated to 0.001 in., suspended from a beam independent of the jacking apparatus, and resting on supports located at least 8 ft. from the plate.

The reaction against uplift for the jack shall be capable of applying a load up to 50,000 lb. A truck or lowboy whose wheels are at least 8 ft. from the plate may be used. The entire assembled apparatus shall be approved before tests are started.

Curves will be submitted, for each location and elevation, showing deflection in inches versus load increments and decrements in pounds, so that the Engineer may determine the adequacy of the subgrade. If the subgrade is determined to be inadequate, the Contractor shall excavate additional earth to the depth ordered by the Engineer and grade the test area so that it is approximately level. A new test will be performed by the testing laboratory, and procedures specified hereinbefore shall be repeated, until the subgrade has been determined by the Engineer as adequate.

The Contractor shall allow a sufficient time in his construction schedule to permit these tests to be made, reported, and reviewed. No extension of the contract time will be permitted due to tests or additional excavation required by tests.

Sect. 3.3 MEASUREMENT. The quantity to be measured for payment under Item 3 shall be the number of soil bearing tests made, as shown or ordered.

Sect. 3.4 PAYMENT. The price per soil bearing test bid under Item 3 shall cover all costs of grading test areas, furnishing reactions, transporting and assembling all test equipment, for making soil bearing tests to be performed by a testing laboratory employed by the Board, in the existing fill area as shown, specified, or ordered.

Earth excavation will be measured for payment Under Item 1.

ITEM 4BACKFILL

Sect. 4.1 WORK INCLUDED. Under Item 4, the Contractor shall furnish and place backfill, including replacing stored backfill or placing backfill, and replacing stored topsoil, as shown, specified, or ordered.

Sect. 4.2 MEASUREMENT. The quantity to be measured for payment under Item 4 shall be the number of cubic yards of earth placed, contained within the planes defined by: (a) the existing ground surface prior to doing any earthwork or construction, (b) the underside of the structure, and (c) vertical planes 2 feet beyond the footing of the structure, or vertical wall of the structure where there is no footing, or (d) as shown or ordered.

Backfill is included for payment under special trench (Item 5), outside pipe (Item 20), outside valves (Item 21), manholes (Item 22), heating and ventilating work (Item 29), and electrical work (Item 30), and will not be measured for payment under Item 4.

Refilling of holes left by removal of pipe, fittings, valves, manholes, septic tank, headwalls, concrete stairs, concrete walks, concrete encasements, and stone monuments, which is included for payment under outside pipe (Item 20), will not be measured for payment under Item 4.

Sect. 4.3 PAYMENT. The price per cubic yard bid under Item 4 shall cover all costs of placing backfills, as shown or ordered, including all work specified in Sect. 4.1.

ITEM 5SPECIAL TRENCH

Sect. 5.1 WORK INCLUDED. Under Item 5, the Contractor shall construct a special trench, for the existing 42 in. pure water pipe, as shown, specified, or ordered. The work required includes:

- (a) excavating test pits, to obtain the exact location of the pipe,
- (b) making earth excavations, including all applicable work listed in Sect. 1.1,
- (c) backfilling with loose compressible material and layers of straw, leaves or sawdust, and
- (d) all other work required to make a special trench.

Sect. 5.2 REQUIREMENTS. Test pits shall be dewatered, sheeted and braced, as required, and so constructed as to protect adjacent utilities and structures.

Loose compressible material for backfill shall conform to the requirements of AASHO Designation M 145, for subgroups A-2-6 and A-2-7.

Sect. 5.3 MEASUREMENT. The quantity to be measured for payment under Item 5 shall be the number of linear feet of special trench actually constructed.

Sect. 5.4 PAYMENT. The price per linear foot bid under Item 5 shall cover all costs of constructing a special trench for the existing 42 in. pure water pipe, as shown or ordered, including all work specified in Sect. 5.1.

ITEM 6FOUNDATION MATERIAL

Sect. 6.1 WORK INCLUDED. Under Item 6, the Contractor shall furnish, place, and compact foundation material, as shown, specified, or ordered.

Sect. 6.2 REQUIREMENTS. Foundation material shall be as specified in General Specifications Sect. S 1.12.

Sect. 6.3 MEASUREMENT. The quantity to be measured for payment under Item 6 shall be the number of cubic yards, after compaction, of foundation material placed and contained within the planes and surfaces shown or ordered.

Foundation material, which is included for payment under outside pipe (Item 20), outside valves (Item 21), heating and ventilating work (Item 29), and electrical work (Item 30), and paving (Item 33), will not be measured for payment under Item 6.

Sect. 6.4 PAYMENT. The price per cubic yard bid under Item 6 shall cover all costs of furnishing, placing, and compacting foundation material as shown, specified, or ordered.

ITEMS 7a and 7bSPECIAL COMPACTED FOUNDATION

Sect. 7.1 WORK INCLUDED. Under Item 7a, the Contractor shall furnish, place, and specially compact materials to required densities, as shown, specified, or ordered.

Under Item 7b, the Contractor shall make earth excavations and furnish, place, and specially compact materials to required densities in the existing fill area, as shown, specified, or ordered.

The subdivisions of Item 7 are:

Item 7a - special compacted foundation

Item 7b - earth excavation and special compacted foundation  
in the existing fill area.

Sect. 7.2 REQUIREMENTS. Special compacted foundation shall be as specified in General Specifications Sect. S 1.13.

Earth excavation under Item 7b shall include all applicable work listed in Sect. 1.1.

Sect. 7.3 MEASUREMENT. The quantity to be measured for payment under Item 7a shall be the number of cubic yards, after compaction, of material placed and specially compacted, and contained within the planes and surfaces shown or ordered, except for the existing fill area excavated and specially compacted which will be measured under Item 7b.

The quantity to be measured for payment under Item 7b shall be the number of cubic yards, after compaction, of material placed and specially compacted, and contained within the planes and surfaces shown or ordered, in the existing fill area.

The Contractor's attention is called to the fact that the quantity for Items 7b may vary considerably from that noted in the Proposal.

Special compacted foundation, which is included for payment under outside pipe (Item 20), outside valves (Item 21), and Intake Structure (Item 23), will not be measured for payment under Item 7a.

Sect. 7.4 PAYMENT. The price per cubic yard bid under Item 7a shall cover all costs of furnishing, placing specially compacting, and meeting density requirements, as determined by field tests, of special compacted foundation, as shown, specified, or ordered.

The price per cubic yard bid under Item 7b shall cover all costs of making earth excavations and furnishing, placing, specially compacting and meeting density requirements, as determined by field tests, of special compacted foundation, as shown, specified, or ordered.

ITEM 8RIP-RAP

Sect. 8.1 WORK INCLUDED. Under Item 8, the Contractor shall furnish and place rip-rap, including necessary excavation for placing rip-rap as shown, specified, or ordered.

Sect. 8.2 REQUIREMENTS. Rip-rap shall have a minimum thickness of 10 in. and shall be hand placed. Care shall be exercised to bed each piece accurately and adequately to produce a facing of rip-rap which is regular.

Rip-rap shall consist of hard, sharp, clean material, from 4 in. to 12 in. in the least dimension. The material shall be a trap rock or approved material, free from any shells, clay, limestone, shale, or other deleterious matter.

Sect. 8.3 MEASUREMENT. The quantity to be measured for payment under Item 8 shall be the number of square yards of rip-rap with a 10 in. minimum thickness placed, as shown or ordered.

Sect. 8.4 PAYMENT. The price per square yard bid under Item 8 shall cover all costs of furnishing and placing rip-rap, including necessary excavation for placing rip-rap, as shown, specified, or ordered.

ITEMS 9a, 9b, and 9cCONCRETE

Sect. 9.1 WORK INCLUDED. Under Items 9a, 9b, and 9c, the Contractor shall furnish and place concrete, complete with accessories, as shown, specified, or ordered. The work required includes:

- (a) furnishing and placing of
  - (1) 4,000, 3,000, and 2,000 psi concrete,
  - (2) polyethylene film for concrete poured on foundation material,
  - (3) construction joints,
  - (4) expansion, sliding, slip, control, and contraction joints,
  - (5) waterstops,
  - (6) floor hardener, and
  - (7) concrete block and mortar for block in Distribution Box for Tile Field;
- (b) disinfecting Filters;
- (c) painting concrete surfaces; and
- (d) all other work required for furnishing and placing concrete, with the exceptions of work specifically excluded under Sect. 9.3.

The subdivisions of Item 9 are:

Item 9a - 4,000 psi concrete  
 Item 9b - 3,000 psi concrete  
 Item 9c - 2,000 psi concrete

Sect. 9.2 REQUIREMENTS. Concrete block shall conform to the requirements of ASTM, Designation C 145, Grade A. Mortar shall consist of 2 parts cement and five parts sand, thoroughly mixed in the required proportions before adding water. The Filters shall be disinfected by spraying all concrete surfaces, including roofs, walls, columns and floors, with a chlorine solution containing 50 ppm of chlorine. After disinfection, the used solution shall be diluted or neutralized so the free chlorine does not exceed 5 ppm, and then discharged from the Filters.

Sect. 9.3 MEASUREMENT. The quantity to be measured for payment under Item 9a shall be the number of cubic yards of 4,000 psi concrete contained within the lines and surfaces shown or ordered.

The quantity to be measured for payment under Item 9b shall be the number of cubic yards of 3,000 psi concrete contained within the lines and surfaces shown or ordered.

The quantity to be measured for payment under Item 9c shall be the number of cubic yards of 2,000 psi concrete contained within the lines and surfaces shown or ordered.

Openings less than 4 sq ft in area, volume of steel reinforcement, pipes 8 in. and smaller in concrete, and chamfered corners will not be deducted in computing the concrete volumes.

Concrete, which is included for payment under outside pipe (Item 20), outside valves (Item 21), manholes (Item 22), Intake Structure (Item 23),



equipment (Item 26), inside pipe and valves (Item 27), architectural work (Item 28), heating and ventilating work (Item 29), and electrical work (Item 30), will not be measured for payment under Items 9a, 9b, and 9c.

Sect. 9.4 PAYMENT. The price per cubic yard bid under Items 9a, 9b, and 9c shall cover all costs of furnishing and placing concrete, complete with accessories, as shown or ordered, including all work specified in Sect. 9.1.

ITEMS 10a, 10b, and 10cSTEEL REINFORCEMENT

Sect. 10.1 WORK INCLUDED. Under Items 10a, 10b, and 10c, the Contractor, shall furnish, bend, place, and fasten steel reinforcement in concrete, as shown, specified, or ordered.

The subdivisions of Item 10 are:

- Item 10a - deformed steel reinforcement bars
- Item 10b - plain steel reinforcement bars
- Item 10c - welded wire fabric.

Sect. 10.2 MEASUREMENT. The quantity to be measured for payment under Items 10a, 10b, and 10c shall be the number of pounds of steel reinforcement placed in concrete, as shown or ordered.

Under Items 10a, and 10b, the weight of bars, in pounds, shall be obtained by multiplying the total number of linear feet of each size of bar in place by the nominal weight for that size bar, in pounds per foot, as tabulated in ACI Standard 315. The totals for all bar sizes shall then be added to obtain the total weight in pounds.

Under Item 10c, the weight of welded wire fabric, in pounds, shall be obtained by multiplying the total number of 100 square feet of each size of fabric in place by the nominal weight for that size fabric, in pounds per 100 square feet, as tabulated in ACI Standard 315. The totals for all fabric sizes shall then be added to obtain the total weight in pounds.

Measurement shall not include any waste metal due to the fact that lengths supplied are too long for their purpose, nor shall the weight of wires, clips, chairs or other spacing devices be included for measurement.

Steel reinforcement, which is included for payment under outside pipe (Item 20), outside valves (Item 21), manholes (Item 22), Intake Structure (Item 23), equipment (Item 26), inside pipe and valves (Item 27), architectural work (Item 28), heating and ventilating work (Item 29), and electrical work (Item 30), will not be measured for payment under Items 10a, 10b, and 10c.

Sect. 10.3 PAYMENT. The price per pound bid under Items 10a, 10b, and 10c shall cover all costs of furnishing, bending, placing, and fastening steel reinforcement in concrete, as shown, specified, or ordered.

ITEM 11STRUCTURAL STEEL

Sect. 11.1 WORK INCLUDED. Under Item 11, the Contractor shall furnish, fabricate, erect or install, and galvanize and paint structural steel shapes and plates, complete with appurtenances and accessories, as shown, specified or ordered, including: platform and stair framing, supports, and kickplates; sand distribution boxes; and lintels.

Sect. 11.2 REQUIREMENTS. The Contractor shall furnish and place all appurtenances and accessories required to complete the erection or installation of structural steel shapes and plates, including bolts, nuts, washers, drill anchors, and grout. Drill anchors shall be as specified in General Specifications Sect. S 2.25. Grout shall be a non-shrink grout as specified in General Specifications Sect. S 2.14.

Sand distribution boxes shall be of all-welded construction, galvanized after fabrication, painted as specified in General Specifications Section S 7. Cover hinges shall be stainless steel, and cover handles shall be furnished.

Sect. 11.3 MEASUREMENT. The quantity to be measured for payment under Item 11 shall be the number of pounds of structural steel shapes and plates erected or installed, as shown or ordered.

The weight of bolts, nuts, washers, and drill anchors shall not be included for measurement.

Steel sheeting, which is included for payment under earth excavations (Item 1), special trench (Item 5), outside pipe (Item 20), and outside valves (Item 21), will not be measured for payment under Item 11.

Steel liner plates, which are included for payment under manholes (Item 22) and Intake Structure (Item 23), will not be measured for payment under Item 11.

Structural steel seal plates, which are included for payment under Intake Structure (Item 23), will not be measured for payment under Item 11.

Structural steel shapes and plates for equipment pads and bases, and pipe hangers and supports, which are included for payment under outside pipe (Item 20), outside valves (Item 21), equipment (Item 26), inside pipe and valves (Item 27), heating and ventilating work (Item 29), and electrical work (Item 30), will not be measured for payment under Item 11.

Sect. 11.4 PAYMENT. The price per pound bid under Item 11 shall cover all costs of furnishing, fabricating, erecting or installing, and galvanizing and painting structural steel shapes and plates, complete with appurtenances and accessories, as shown or ordered, including all work specified in Sect. 11.1.

SUBDIVISIONS OF ITEM 12FRAMES AND COVERS, AND DRAIN INLETS

Sect. 12.1 WORK INCLUDED. Under the subdivisions of Item 12, the Contractor shall furnish and install frames and covers and drain inlets, complete with accessories, as shown, specified, or ordered.

The subdivisions of Item 12 are:

- Item 12a - Filter Manhole Frames and Covers  
(includes inner and outer covers)
- Item 12b - Septic Tank Manhole Frame and Cover
- Item 12c - Meter Chamber Slab Type Frame and Cover
- Item 12d - Other Slab Type Frames and Covers
- Item 12e - Drain Inlets.

Sect. 12.2 REQUIREMENTS. Frames and covers shall be as specified in General Specifications Sect. S 4.5. Drain inlets shall be as specified in General Specifications Sect. S 4.6.

The Contractor shall furnish and place grout, where shown, to bed frames. Grout shall be a non-shrink grout, as specified in General Specifications Sect. S 2.14.

Sect. 12.3 MEASUREMENT. The quantity to be measured for payment under the subdivisions of Item 12 shall be the number of frames and covers and drain inlets of each type installed, as shown or ordered.

Sect. 12.4 PAYMENT. The price per frame and cover and drain inlet bid under the subdivisions of Item 12 shall cover all costs of furnishing and installing frames and covers and drain inlets, complete with accessories, as shown, specified, or ordered.

ITEMS 13a and 13bTREADS

Sect. 13.1 WORK INCLUDED. Under Items 13a and 13b, the Contractor shall furnish and install safety treads and stair treads, complete with accessories, as shown, specified, or ordered.

The subdivisions of Item 13 are:

Item 13a - safety treads  
Item 13b - stair treads.

Sect. 13.2 REQUIREMENTS. Safety and stair treads shall be as specified in General Specifications Sect. S 4.7 and S 4.8.

Sect. 13.3 MEASUREMENT. The quantity to be measured for payment under Item 13a shall be the number of safety treads installed, as shown or ordered.

The quantity to be measured for payment under Item 13b shall be the number of stair treads installed, as shown or ordered.

Sect. 13.4 PAYMENT. The price per tread bid under Items 13a and 13b shall cover all costs of furnishing and installing safety treads and stair treads, complete with accessories, as shown, specified, or ordered.

ITEM 14STRUCTURAL ALUMINUM

Sect. 14.1 WORK INCLUDED. Under Item 14, the Contractor shall furnish, fabricate, erect or install, and paint structural aluminum shapes and plates, complete with appurtenances and accessories, as shown, specified, or ordered, including: grating frames; baffles; perforated aluminum plates and frames in Sand Bins; aluminum checkered plate and frame for the Septic Tank; and aluminum angles for expansion joints.

Sect. 14.2 REQUIREMENTS. The Contractor shall furnish and place all appurtenances and accessories required to complete the erection or installation of structural aluminum shapes and plates, including: aluminum straps and bars; stainless steel bolts, nuts, and washers; drill anchors using type 316 stainless steel bolts; approved adjustable wedge inserts; joint sealer; and rubber fillers and seals.

Structural aluminum shall be as specified in General Specifications Sect. S 4.10. Aluminum checkered plate shall be of alloy 6061-T6 with a diamond pattern. Checkered plate and frame shall be designed to support a uniform live load of 300 psf. Drill anchors shall be as specified in General Specifications Sect. S 2.25. Joint sealer shall be as specified in General Specifications, Sect. S 2.16. Rubber fillers and seals shall have a Durometer Hardness of 25, and be as approved. Rubber seal shall be vulcanized to filler and cemented to aluminum as approved.

Sect. 14.3 MEASUREMENT. The quantity to be measured for payment under Item 14 shall be the number of pounds of structural aluminum shapes and plates erected or installed, as shown or ordered.

The weight of aluminum straps, bars, bar clamps and guides, stainless steel bolts, nuts and washers, drill anchors, and wedge inserts shall not be included for measurement.

Structural aluminum shapes and plates, which are included for payment under frames and covers, and drain inlets (Item 12), aluminum grating (Item 15), aluminum handrail (Item 17), aluminum ladders (Item 18), aluminum guard rail (Item 19), Intake Structure (Item 23), inside pipe and valves (Item 27), architectural work (Item 28), heating and ventilating work (Item 29), and electrical work (Item 30), will not be measured for payment under Item 14.

Sect. 14.4 PAYMENT. The price per pound bid under Item 14 shall cover all costs of furnishing, fabricating, erecting or installing, and painting structural aluminum shapes and plates, complete with appurtenances and accessories, as shown or ordered, including all work specified in Sect. 14.1.

ITEM 15ALUMINUM GRATING

Sect. 15.1 WORK INCLUDED. Under Item 15, the Contractor shall furnish and install aluminum grating, complete with accessories, as shown, specified, or ordered, including aluminum bars, aluminum banding bars and stainless steel self-tapping screws.

Sect. 15.2 REQUIREMENTS. Aluminum grating shall be as specified in General Specifications Sect. S 4.11.

Sect. 15.3 MEASUREMENT. The quantity to be measured for payment under Item 15 shall be the number of pounds of aluminum grating installed, as shown or ordered.

The weight of bars, banding bars, and screws will not be included for measurement.

Sect. 15.4 PAYMENT. The price per pound bid under Item 15 shall cover all costs of furnishing and installing aluminum grating, complete with accessories, as shown or ordered, including all work specified in Sect. 15.1.

ITEM 16ALUMINUM SIDEWALK AND ACCESS DOORS

Sect. 16.1 WORK INCLUDED. Under Item 16, the Contractor shall furnish and install aluminum sidewalk and access doors, complete with accessories, as shown, specified, or ordered.

Sect. 16.2 REQUIREMENTS. Sidewalk and access doors shall be as specified in General Specifications Sect. S 4.12 and S 4.13.

Sect. 16.3 MEASUREMENT. The quantity to be measured for payment under Item 16 shall be the number of square feet of clear opening of sidewalk and access doors installed as shown or ordered.

Sect. 16.4 PAYMENT. The price per square foot bid under Item 16 shall cover all costs of furnishing and installing aluminum sidewalk and access doors, complete with accessories, as shown, specified, or ordered.



ITEM 17ALUMINUM HANDRAIL

Sect. 17.1 WORK INCLUDED. Under Item 17, the Contractor shall furnish and install single and double rail handrail, complete with appurtenances and accessories, including fittings, plates, sleeves and drill anchors, as shown, specified, or ordered.

Sect. 17.2 REQUIREMENTS. Aluminum handrail shall be as specified in General Specifications Sect. S 4.14.

Sect. 17.3 MEASUREMENT. The quantity to be measured for payment under Item 17 shall be the number of linear feet of single and double rail aluminum handrail installed, as shown or ordered.

Sect. 17.4 PAYMENT. The price per linear foot bid under Item 17 shall cover all costs of furnishing and installing aluminum handrail, complete with appurtenances and accessories, as shown or ordered, including all work specified in Sect. 17.1.

ITEM 18ALUMINUM LADDERS

Sect. 18.1 WORK INCLUDED. Under Item 18, the Contractor shall furnish and install aluminum ladders, complete with appurtenances and accessories, including aluminum grab bars, brackets and supports, and drill anchors, as shown, specified, or ordered.

Sect. 18.2 REQUIREMENTS. Aluminum ladders shall be as specified in General Specifications Sect. 4.15.

Sect. 18.3 MEASUREMENT. The quantity to be measured for payment under Item 18 shall be the number of linear feet of aluminum ladders installed, as shown or ordered.

Sect. 18.4 PAYMENT. The price per linear foot bid under Item 18 shall cover all costs of furnishing and installing aluminum ladders, complete with appurtenances and accessories, including aluminum grab bars, brackets and supports, and drill anchors, as shown, specified, or ordered.

ITEM 19ALUMINUM GUARD RAIL

Sect. 19.1 WORK INCLUDED. Under Item 19, the Contractor shall furnish and install aluminum guard rail, complete with appurtenances and accessories, including rails and posts, as shown, specified, or ordered.

Sect. 19.2 REQUIREMENTS. Rail elements shall be the beam type, or aluminum alloy Alclad 2024-T3, and shall be equal to Aluminum Company of America beam guard rail. Rails shall be 12 in. wide by 3 in. deep by 0.105 in. thick. Terminal sections shall have flared ends. Post shall be of aluminum alloy 6061-T6. Bolts shall be of aluminum alloy 2024-T4, and nuts shall be aluminum alloy 6061-T6.

Posts shall be driven to the depth shown; excavating to set posts will not be permitted. Posts shall not be driven sooner than 90 days after filled areas have been compacted. Rails shall be lapped a minimum of  $12\frac{1}{2}$  in. All curves shall be made in the shop.

Sect. 19.3 MEASUREMENT. The quantity to be measured for payment under Item 19 shall be the number of linear feet of aluminum guard rail installed, as shown or ordered.

Sect. 19.4 PAYMENT. The price per linear foot bid under Item 19 shall include all costs of furnishing and installing aluminum guard rail, complete with appurtenances and accessories, including rails and posts, as shown, specified, or ordered.

SUBDIVISIONS OF ITEM 20OUTSIDE PIPE

Sect. 20.1 WORK INCLUDED. Under the subdivisions of Item 20, the Contractor shall furnish, install, paint, test, disinfect, and place in satisfactory operation outside pipe, complete with appurtenances and accessories, as shown, specified, or required. The work required includes:

- (a) making earth excavations, including all applicable work listed in Sect. 1.1;
- (b) placing backfills, including all applicable work listed in Sect. 4.1;
- (c) furnishing, placing, and compacting foundation material, as specified in General Specifications Sect. S 1.12, and if permitted, sand fill for shaped trenches;
- (d) furnishing and placing special compacted foundation, as specified in General Specifications Sect. S 1.13;
- (e) furnishing and placing gravel and polyethylene film for clay tile field pipe;
- (f) furnishing and placing concrete for pipe encasements, cradles, supports, and anchor blocks, including applicable work listed in Sect. 9.1;
- (g) furnishing, bending, placing, and fastening steel reinforcement in concrete;
- (h) furnishing, installing, painting, testing, and disinfecting of;
  - (1) prestressed reinforced concrete pipe,
  - (2) reinforced concrete pipe,
  - (3) cast iron pipe,
  - (4) wrought-iron pipe,
  - (5) steel pipe,
  - (6) copper tube,
  - (7) clay pipe,
  - (8) fittings and specials,
  - (9) couplings, and
  - (10) structural steel pipe support brackets;
- (i) removing existing pipe, fittings, couplings, valves and valve appurtenances, steel bulkhead and dead end anchor, manholes, septic tank, headwalls, concrete stairs, concrete walks, concrete encasements, and stone monuments, including refilling of holes left by removing the items mentioned hereinbefore with backfill; and replacing removed stone monuments;
- (j) connecting to existing and new pipe, fittings, couplings, sleeves and castings, valves, and equipment in this and other items; and
- (k) all other work required for furnishing, installing, painting, testing, disinfecting, and placing in satisfactory operation outside pipe, complete with appurtenances and accessories, with the exceptions of work specifically excluded under Sect. 20.3 and Sect. 20.4.

The subdivisions of Item 20 are:

Item 20a - 60 in. prestressed reinforced concrete pipe  
 Item 20b - 54 in. prestressed reinforced concrete pipe  
 Item 20c - 42 in. Prestressed reinforced concrete pipe  
 Item 20d - 36 in. prestressed reinforced concrete pipe  
 Item 20e - 30 in. prestressed reinforced concrete pipe  
 Item 20f - 30 in. reinforced concrete pipe

Item 20g - 12 in. cast iron pipe  
 Item 20h - 8 in. cast iron pipe  
 Item 20i - 6 in. cast iron pipe  
 Item 20j - 4 in. wrought-iron pipe  
 Item 20k - 3 in. wrought-iron pipe  
 Item 20l - 1- $\frac{1}{4}$  in. wrought-iron pipe  
 Item 20m - 42 in. steel pipe  
 Item 20n - 2 in. copper tube  
 Item 20o - 1- $\frac{1}{2}$  in. copper tube  
 Item 20p - 1 in. copper tube  
 Item 20q - 1/8 in. copper tube  
 Item 20r - 10 in. clay pipe  
 Item 20s - 8 in. clay pipe  
 Item 20t - 6 in. clay pipe  
 Item 20u - 4 in. clay pipe  
 Item 20v - removing existing pipe and structures.

Sect. 20.2 REQUIREMENTS. For earth trenches, the Contractor shall use foundation material for pipe bedding, unless otherwise shown. However, if suitable subgrade is encountered as determined by the Engineer, and upon permission from the Engineer, the Contractor may use either foundation material for pipe bedding or shaped bedding. Sand fill for shaped bedding shall conform to the requirements of ASTM Designation C 33 for fine aggregate, and shall be shaped by means of an approved template.

Gravel for clay tile field pipe shall be graded uniformly from 3/4 in. to 2-1/2 in. Polyethylene film shall be as specified in General Specifications Sect. S 2.11.

Prior to removing any existing pipe or structure, the Contractor shall notify the Department and obtain its permission for taking pipes or structures out of service. Removal of pipe and structures shall be carried out in an approved and workmanlike manner, under the direct supervision of the Department and the Engineer, at a time convenient to the Department. The Contractor shall take special precautions in removing pipe and structures, making certain to protect adjacent structures from any damage. Damages caused by the Contractor's operations shall be repaired, to the satisfaction of the Engineer, at the Contractor's expense. Monuments shall be removed carefully making certain no damage occurs to them. Monuments shall be cleaned as approved, and replaced in the exact manner in which they were placed prior to removal.

Prior to making final connection of the 60 in. West Parish Filter Conduit to the existing pipe, the Contractor shall remove an existing bulkhead in the existing pipe after the new section has been tested. The final connections shall be made and the connecting section shall then be disinfected.

The Contractor shall make all necessary connections to existing pipe, fittings, couplings, sleeves and castings, valves, and equipment under the direct supervision of the Department and the Engineer, at a time convenient to the Department. Where calking is required for making the connection or joint, the Contractor shall furnish and calk joints with an approved calking compound.

Sect. 20.3 MEASUREMENT. The quantity to be measured for payment, under Items 20a to 20u inclusive, shall be the number of linear feet of pipe actually installed, as shown or ordered. Measurement shall be taken along the top of the

pipe after laying, and shall be taken from the outside vertical face of the structure. In the case of surface drains and sand pipe at the Sand Bins, measurement shall be taken from the plane of the outside vertical face of the structure.

There will be no deductions made for outside valves.

Prestressed reinforced concrete pipe and reinforced concrete pipe, which are manholes (Item 22), and Intake Structure (Item 23), will not be measured for payment under Item 20.

Sect. 20.4 PAYMENT. The price per linear foot bid under the subdivisions of Items 20a to 20u inclusive and the lump sum price bid under Item 20v shall cover all costs of furnishing, installing, painting, testing, disinfecting, and placing in satisfactory operation outside pipe, complete with appurtenances and accessories, as shown or ordered, including all work specified in Sect. 20.1.

Rock excavation, special trench, and electrical work will be included for payment under the appropriate items of the Contract.

## SUBDIVISIONS OF ITEM 21

### OUTSIDE VALVES

Sect. 21.1 WORK INCLUDED. Under the subdivisions of Item 21, the Contractor shall furnish, install, paint, test, disinfect, and place in satisfactory operation outside valves, complete with valve appurtenances and accessories, as shown, specified, or ordered. The work required includes:

- (a) all applicable work listed in Sect. 20.1;
- (b) furnishing, installing, painting, and testing of gate valves curb stops, and air vent assemblies;
- (c) all other work required for furnishing, installing, painting, testing, disinfecting, and placing in satisfactory operation outside valves, complete with appurtenances and accessories, with the exceptions of work specifically excluded under Sect. 21.4.

The subdivisions of Item 21 are:

- Item 21a - 42 in. spur gear gate valves
- Item 21b - 42 in. bevel gear gate valves
- Item 21c - 12 in. gate valves
- Item 21d - 8 in. gate valves
- Item 21e - 6 in. gate valves
- Item 21f - 4 in. gate valves
- Item 21g - 3/4 in. curb stops
- Item 21h - air vent assemblies.

Sect. 21.2 REQUIREMENTS. The Contractor shall furnish and install air vent assemblies, complete with corporation stops, drip gate valves, valve appurtenances, red brass pipe and fittings, threaded outlets in prestressed reinforced concrete pipe, brass plugs, and 2,000 psi concrete supports.

Red brass pipe shall be extra-heavy conforming to the standards of the Department. Brass fittings shall be equal to Mueller Co. cast brass fittings.

Concrete work shall include all applicable work listed in Sect. 9.1.

Sect. 21.3 MEASUREMENT. The quantity to be measured for payment under the subdivisions of Item 21 shall be the number of gate valves and curb stops, buried in earth, actually installed, as shown or ordered.

Sect. 21.4 PAYMENT. The price per outside valve bid under the subdivisions of Item 21 shall cover all costs of furnishing, installing, painting, testing, disinfecting, and placing in satisfactory operation outside valves, complete with appurtenances and accessories, as shown or ordered, including all work specified in Sect. 21.1.

Rock excavation will be included for payment under the appropriate item of the Contract.

## SUBDIVISIONS OF ITEM 22

### MANHOLES

Sect. 22.1 WORK INCLUDED. Under the subdivisions of Item 22, the Contractor shall construct and test watertight manholes, complete with appurtenances and accessories, as shown, specified, or ordered. The work required includes:

- (a) making earth excavations, including all applicable work listed in Sect. 1.1,
- (b) placing backfills, including all applicable work listed in Sect. 4.1,
- (c) furnishing and placing of
  - (1) concrete, including all applicable work listed in Sect. 9.1,
  - (2) steel reinforcement, including all applicable work listed in Section 10.1,
  - (3) reinforced concrete pipe manhole barrels.
  - (4) steel liner plates and grout,
  - (5) non-shrink grout, sealer, pipe wrapping, and special adhesive, and
  - (6) all other work required for constructing watertight manholes, complete with appurtenances and accessories, with the exceptions of work specifically excluded under Sect. 22.5.

The subdivisions of Item 22 are:

- Item 22a - Sanitary Manholes
- Item 22b - Venturi Manholes
- Item 22c - Manhole 'A'
- Item 22d - Manhole 'B'
- Item 22e - Manhole 'C'
- Item 22f - Manhole 'D'

Sect. 22.2 REQUIREMENTS. Liner plates, grout, and grouting procedure shall be as specified in Sect. 23.8.

Non-shrink grout shall be as specified in General Specifications Sect. S 2.14. Sealer shall be as specified in General Specifications Sect. S 2.16.

Pipe wrapping shall be a high quality blown sponge rubber of uniform thickness and density, and shall be equal to Servicised Products Corp. Cementone wrapping.

Special adhesive, for applying pipe wrapping to pipe, shall be a solution of plasticizing, adhesive and vapor-resisting compounds blended with natural and petroleum asphalts, and shall be equal to Sika Chemical Corp. Sika-Seal adhesive.

Sect. 22.3 CONSTRUCTION. Concrete base slabs of manholes shall be poured on undisturbed subgrade.

Holes shall be cut into manhole barrels for pipe installation, and non-shrink grout shall be provided to fill the space between the holes and the pipes.



The waterways of all manholes shall be formed of the same sizes and shapes as the pipes they connect to. Changes in diameter shall be made gradually and evenly. Special care shall be taken to form channels that will provide the best hydraulic conditions for smooth flow; steel trowel finish shall be provided. Slopes shall be provided on the benches adjacent to the waterways, as shown.

In order to retain the stability of the existing Filters, the Contractor shall be required to construct the Venturi Manholes using the open caisson method. The manhole barrel shall be set on the ground and excavation shall proceed from inside the barrel by undermining the pipe. The pipe shall then be advanced by approved methods. This procedure shall continue in one ft. increments until the manhole barrel is set in position. Steel sheet piling and the steel liner plate shall then be installed before continuing excavation. After the concrete has been placed, the Contractor shall drill holes in the manhole barrel and pump grout into voids between the earth and the barrel.

The Contractor will not be permitted to construct both venturi manholes at the same time; one manhole must be completely constructed before starting work on the other.

Sect. 22.4 MEASUREMENT. The quantity to be measured for payment under the subdivisions of Item 22 shall be the number of each type of manhole constructed, as shown or ordered.

Sect. 22.5 PAYMENT. The price per manhole bid under the subdivisions of Item 22 shall cover all costs of constructing watertight manholes, complete with appurtenances and accessories, including all work specified in Sect. 22.1.

Rock excavation, frames and covers, aluminum grating and platforms, aluminum ladders, and inside pipe and valves will be included for payment under the appropriate items of the Contract.

ITEM 23INTAKE STRUCTURE

Sect. 23.1 WORK INCLUDED. Under Item 23, the Contractor shall construct an Intake Structure to the limits noted, complete with appurtenances and accessories, as shown, specified, or required. The work required includes:

- (a) earth excavation, including all applicable work listed in Sect. 1.1,
- (b) dewatering the Raw Water Settling Basin,
- (c) Desilting a portion of the Raw Water Settling Basin,
- (d) Constructing and removing a temporary dike,
- (e) furnishing and placing special compacted foundation, as specified in General Specifications Sect. S 1.13, but not having any stones greater than 3 in. in the largest dimension, and not more than 10 percent passing a No. 200 sieve,
- (f) mechanically compacting, as approved, all existing areas disturbed during construction.
- (g) removing and replacing rubble,
- (h) furnishing and placing concrete, including all applicable work listed in Sect. 9.1.
- (i) furnishing, bending, placing, and fastening steel reinforcement,
- (j) furnishing, fabricating, installing, and coating aluminum bar screens and frames,
- (k) furnishing and placing stop logs and grooves.
- (l) furnishing, installing, testing, and disinfecting 54 in. prestressed reinforced concrete pipe in tunnel, including making connection to outside pipe,
- (m) furnishing, placing, and testing a 54 in. diam sluice gate, and
- (n) all other work required for constructing an Intake Structure with the exceptions of work specifically excluded under Sect. 23.10.

Sect. 23.2 DEWATERING RAW WATER SETTLING BASIN. The elevations of the Raw Water settling Basin have been obtained from a drawing entitled "Springfield Water Works, Little River Supply, Contour Map, Sedimentation Basin, West Parish Filters" and dated December 1931.

The Contractor will not be permitted to do any work on the Intake Structure until the basin is dewatered. The Contractor will not be permitted to do any work in Wash Water Settling Basin No. 2 (Item 1) until work on the Intake Structure is completed. The basin will be dewatered by the Department, at a time convenient to it, by removing the water to the Wash Water Settling Basins. The Contractor shall render all necessary assistance, as determined by the Engineer, to the Department to accomplish the dewatering, including furnishing labor, materials, and equipment. The basin will be kept free of water until the Intake Structure is constructed, unless an emergency develops, as determined by the Department. After the temporary dike is built and during an emergency, the basin may be refilled to Elevation 480.00. If the basin is refilled, the Department will dewater the basin at a time convenient to it and the Contractor shall again render such assistance to the Department as the Department may require to accomplish the dewatering.

Sect. 23.3 DESILTING RAW WATER SETTLING BASIN. After dewatering the basin the Contractor shall desilt, by excavating all material, a portion of the basin, to the limits and elevation noted.

The Department may desilt the rest of the basin while the Contractor is working on the Intake Structure, and the Contractor shall coordinate his construction with the work of the Department.

Sect. 23.4 TEMPORARY DIKE. Immediately after dewatering and desilting the basin, and prior to doing any other work for the Intake Structure, the Contractor shall construct a temporary dike consisting of suitable material, as specified in General Specifications Sect. S 1.10. Material shall be placed and compacted as specified in General Specifications Sect. S 1.11. The area between the temporary dike and the existing dike shall be filled with water to test the watertightness of the Intake Structure. Leaks shall be repaired by the Contractor at his own expense, until the structure is watertight. The dike shall be removed after all construction and testing have been completed for the Intake Structure.

Sect. 23.5 RUBBLE. Rubble shall be removed as directed, for temporary dike construction. After the temporary dike is removed, rubble shall be replaced as approved.

Sect. 23.6 ALUMINUM BAR SCREENS. Aluminum bar screens and frames shall be fabricated as detailed. Frames, plates, bars, shims if required, and straps shall be as specified in General Specifications Sect. S 4.10. Type 316 stainless steel bolts, nuts and washers, and drill anchors, as specified in General Specifications Sect. S 2.25 using type 316 stainless steel bolts shall be provided.

Sect. 23.7 STOP LOGS AND GROVES. Stop logs shall be No. 1 structural longleaf southern pine, of the size shown, with two silicon bronze eyebolts per log. Eyebolts shall be 5/8 in. diam. by 4 in. long shank, equal to Merrill Bros. M-29 shoulder style, eyebolts. Each log shall have two 3 in. by 2-1/2 in. slots to receive eyebolts.

Stop log grooves shall be as specified in General Specifications Sect. S 4.9.

Sect. 23.8 PIPE IN TUNNEL. Tunnel shall be constructed by the use of steel liner plates, equal to Commercial Shearing & Stamping Co., or Armco Drainage & Metal Products, Inc. Each liner plate shall be a single plate of pressed metal, provided with flanges on the two long sides, and depending on the type, flanges on the two short sides. Corners of flanges shall be practically square and when bolted together shall not leave an opening large enough to admit granular material. Plates shall be corrugated or panelled out. Liner plates shall have adequate strength to prevent a deflection of not more than 2 in. at any point, measured radially. Should deflection exceed 2 in., the Contractor shall stop work, shore up the tunnel and use approved supporting ribs, bent to a circular shape and alternating with liner plates.

Liner plates, and ribs if used, shall be erected to the approved line, grade, and clearance. Where liner plates can be installed without I beam ribs, the end joints between liner plates shall be staggered in adjacent rings. Erection of liner plates and ribs shall be kept as close as possible to the face of the excavation, as approved.

As liner plates are erected, annular spaces outside the liner plates shall be thoroughly packed with approved packing material. Care shall be taken to see that the packing is carried up each side at about the same rate, to avoid unequal loading on the liner plates.

The Contractor shall submit, for approval, a location drawing of each grout hole in the tunnel liner. Each ring shall be equipped with at least two grout holes. Grout holes shall be staggered around the circumference so that the circumference is covered in 4 rings. Within 20 ft. of the end of the lining and at least once on each shift, the packing shall be consolidated by grouting through holes, with grout. Grouting shall proceed simultaneously on both sides of the tunnel from the lower holes upward. Grouting shall be controlled to the extent that all nominal voids back of the liner plates shall be filled to refusal without deflection of the liner plates as a result of such grouting pressures. Grout plugs shall be removed from all holes above the level of each operation, and grouting continued until grout runs out of the next higher hole which shall then be plugged. The grout pipe shall be moved to the next higher hole and the process repeated until the packing is thoroughly filled.

Grout shall consist of one part portland cement and two parts of sand with sufficient water to produce a consistency suitable for the work. Sand for grout shall be of such fineness that 100% will pass a No. 8 sieve, and not less than 45% will pass a No. 40 sieve. An approved plasticizer may be added to the grout to facilitate flowability.

On orders of the Engineer and should conditions make it necessary, as determined by the Engineer, the Contractor shall install a shield of poling plates. The heading shall be partially bulkheaded at all times and completely bulkheaded whenever excavation is interrupted.

Pumped concrete shall be placed by using a method equal to the Chain Belt Co. Pumpcrete Method, all in accordance with the manufacturer's directions and as approved by the Engineer. All procedures, operations, and details of pumped concrete placement shall be submitted for approval prior to placing.

Sect. 23.9 SLUICE GATE. Sluice gate shall be Chapman Valve Manufacturing Co. 54 in. round opening self-contained, flush bottom closure, sluice gate. Gate shall be cast iron, bronze mounted, flanged frame type, with non-rising stem, extension stem, stem coupling, operating nut, approved cast iron stem guide, approved tee wrench, separate cast iron wall thimble, and grout pocket. All parts, except for stem, shall be designed with a factor of safety of not less than 3, based on ultimate strength of material. The gate shall be designed for a seating pressure of 30 ft.

The gate or disc shall be of cast iron, substantially ribbed. The disc thickness shall not be less than  $3/4$  in. The side guides shall consist of heavy castings, the inner flanges being bolted to the gate frame.

The yoke shall be cast iron of such design as to withstand loads resulting from opening and closing of the gate. The yoke shall have machined reinforced pads, which shall be bolted to similarly machined pads provided on ends of guides. The yoke shall be provided with a pad cast and machined to receive a stem thrust cap.

The sluice gate shall be fitted with a suitable number of adjustable solid bronze wedges properly distributed to take up wear leaks in the face of the gate. Each wedge shall be provided with adjusting and set bolts with bronze lock nuts which shall be set up tight after the wedge has been correctly adjusted.

The sluice gate shall be provided with a back water guide to prevent chattering of the gate or springing of the lifting shaft. This guide shall consist of a groove in the side castings and a corresponding tongue on the gate, both being machined all over and faced with bronze. The clearance between the groove and tongue shall not exceed 1/16 in.

An approved compressible resilient material shall be attached to the gate disc to insure complete closure of the gate.

The gate and thimble shall be set accurately in place. Grout for the gate frame pocket shall be placed after the gate frame is installed. Grout shall be a non-shrink grout, as specified in General Specifications Sect. S 2.14. The adjustable wedges of the gate shall be adjusted as directed. The stem guide shall be set so that the stem runs smoothly in true alinement.

After installation, the Contractor shall test the gate for smoothness of operation and for watertightness, against maximum operating head. Any leaks around the gate shall be repaired and wedges adjusted as required.

All bolts, studs, and nuts shall be silicon bronze. Bronze for side wedges and seats shall conform to the requirements of ASTM Designation B 62; thrust nuts and stem couplings, ASTM Designation B 132, Alloy B; seat facings, ASTM Designation B 124, Alloy 2; stem and extension stem, silicon bronze equal to Everdur 1010.

Operating nut shall be of bronze, tool finished all over and constructed for hard service. Internal thread shall be of the square or Acme type, and shall engage smoothly with that of the lifting shaft.

The upper end of the stem shall be threaded a sufficient length for the full opening of the gate. This thread shall be accurately cut in a lathe and shall be of the square or Acme type. The diameter of stem shall be sized using the following formula:

- P - the force required to operate the gate in lb
- A - the gross area of the gate in sq ft
- H - the head, in ft
- f - the coefficient of friction, 0.5 minimum
- W - the weight of the gate in lb, corrected for submergence closing gate
- L - the center to center distance between stem bearing guides, in in., 120 in. maximum
- d - The diameter of the stem (the root diameter for threaded stem), in in.
- E - modulus of Elasticity of the stem material, in psi
- Y - yield point stress of the stem material, in psi

To open gate,

$$P = 62.5 H A f + W \quad \text{and} \\ d^2 = \frac{3.84 P}{Y}$$

To close gate,

$$P = 62.5 H A f - W \quad \text{and} \\ d^4 = \frac{6.22 \times L^2 \times P}{E}$$

The wall thimble shall be cast iron, of adequate section to resist without deformation or damage all stresses incident to casting, handling, placing, and operation. The thimble shall have a flange on one end to which the gate shall be attached. The flange shall be machined true and straight, and accurately drilled and tapped for stud bolts for attachment of sluice gate frame. The flange shall be provided with dowels for matching gate flange at time drilling is done and for assistance in erecting the gate. Ribs shall be provided on the wall thimble to extend into the concrete.

The gate shall have the size of the opening, the name of the maker, and the working water pressure for which it is designed, cast in raised letters upon the gate.

The gate shall be painted as specified in General Specifications, Section S7.

Sect. 23.10 PAYMENT. The lump sum price bid under Item 23 shall cover all costs of constructing an Intake Structure to the limits noted, complete with appurtenances and accessories, as shown or required, including all work specified in Sect. 23.1.

Rock excavation and aluminum ladder will be measured for payment under the appropriate items of the Contract.

ITEMS 24a and 24bFILTER GRAVEL AND SAND

Sect. 24.1 WORK INCLUDED. Under Items 24a and 24b, the Contractor shall furnish, place, and disinfect gravel and sand for the Filters as shown, specified, or ordered.

The subdivisions of Item 24 are:

- Item 24a - filter gravel
- Item 24b - filter sand.

Sect. 24.2 GRAVEL. Gravel for the Filters shall consist of hard, durable, clean material, screened and washed to remove all fine material and dust. It shall be free from any considerable amount of flat, laminated, or elongated particles and shall be free from shells, clay, limestone, shale, or any other deleterious matter. The gravel may consist of broken rock screened to the proper size, or gravel screened from sand and gravel banks of a sandy nature. Gravel screened from hardpan or clayey material will not be acceptable.

Before any gravel is placed, the Filters shall be thoroughly cleaned. Dirt or foreign matter of any kind shall be excluded from the filters after beginning to place the gravel, and any gravel made dirty in any way after placing shall be removed at once, and replaced by the Contractor at his own expense.

Gravel shall be placed to the depths shown, and care shall be taken to avoid any damage to the split clay pipe underdrains. After each layer is placed, it shall be raked level in preparation for the next layer. Gravel shall not be placed within 4 ft. of the inlet chambers or within 2 ft. of the outside or cross walls; these spaces being reserved for filling with sand.

Gravel shall be graded as follows:

- (a) lower 7 in. layer - 2 in. to one in.,
- (b) middle 2-1/2 in. layer - one in. to 3/8 in. and
- (c) top 2-1/2 in. layer - passing a 3/8 in. mesh screen, coarser than filter sand, with no fines, effective size 2-3 mm.

If in the opinion of the Engineer, the gravel is not adequately disinfected by the chlorinated water used in hydraulically placing the sand, as specified in Sect. 24.3, approved methods shall be employed to assure disinfection of the gravel.

Sect. 24.3 SAND. Filter sand shall be washed and graded and shall consist of hard, sharp, uncoated siliceous grains free from clay, loam, dirt, and other deleterious substances with not more than one percent flat or micaceous particles. The sand shall not contain more than 2 percent calcium and magnesium taken together and calculated as calcium carbonate; and not more than 2 percent by weight shall be lost on ignition of the crushed and powdered sand.

The sand shall have an effective size of not less than 0.25 nor more than 0.35 mm and a uniformity coefficient of not more than 3.0. The sand shall be free from dust and shall not contain more than one percent finer than 0.13 mm, and shall be entirely free from particles larger than 5.0 mm.

The Contractor shall not place sand until the pressure water system is installed. The Department will isolate the pressure water system so that the Contractor has access to water in the Wash Water Tank. The Wash Water Tank will be filled at intervals, by the Department, at its convenience, for the Contractor's use. The entire operation shall be subject to the Department's requirements for Filter Plant operation.

The filter sand shall be disinfected in the Sand Bins before it is placed in the filters, in the following manner. The bin into which sand is to be placed shall first be half-filled with water having a free chlorine concentration of at least 125 ppm. The sand shall be dumped slowly to promote dispersion through the water and settlement in uniform layers under water. As the bin is filled with sand, the water level shall be maintained at least one ft above the sand and a concentration of not less than 100 ppm of free chlorine shall be maintained in the water. The sand and chlorinated water shall be maintained in contact for at least 24 hours before the sand is placed in the filters.

The sand shall be transported hydraulically from the bins to the distributors, and shall be placed in the filters to the lines shown. The sand shall be placed in three layers, the first approximately 18 in. thick, and the other two approximately 12 in. thick, so that the ultimate thickness after compaction will be 42 in. Care should be taken to prevent disturbing the gravel during the placing of the sand. Each layer shall be raked level before the next layer is placed. During the placing of the last foot of sand, a layer of water 2 to 4 in. deep shall be maintained over the top of the sand, in accordance with instructions of the Engineer. The top of the sand after final placing shall be exactly level.

The Contractor shall take adequate precautions to prevent any foreign or polluting material from becoming mixed with the sand, and shall protect the sand from such material until the final acceptance of the work.

Sect. 24.4 MEASUREMENT. The quantity to be measured for payment under Item 24a shall be the number of cubic yards of filter gravel placed, as shown or ordered.

The quantity to be measured for payment under Item 24b shall be the number of cubic yards of filter sand placed, as shown or ordered.

Sect. 24.5 PAYMENT. The price per cubic yard bid under Items 24a and 24b shall cover all costs of furnishing, placing, and disinfecting gravel and sand for the Filters, as shown, specified, or ordered.



ITEM 25FILTER UNDERDRAINS

Sect. 25.1 WORK INCLUDED. Under Item 25, the Contractor shall furnish and install split clay pipe, including bricks at ends, as shown, specified, or ordered.

Sect. 25.2 REQUIREMENTS. Split clay pipe shall be as specified in General Specifications Sect. S 5.8.

Sect. 25.3 MEASUREMENT. The quantity to be measured for payment under Item 19 shall be the number of linear feet of split clay pipe, placed, as shown or ordered.

Sect. 25.4 PAYMENT. The price per linear foot bid under Item 25 shall cover all costs of furnishing and installing split clay pipe, including bricks at ends, as shown, specified, or ordered.

ITEM 26EQUIPMENT

Sect. 26.1 WORK INCLUDED. Under Item 26, the Contractor shall furnish, install, paint, and test equipment, complete with appurtenances and accessories, as shown, specified, or required. The work required includes:

- (a) metering equipment,
- (b) loss of head gages,
- (c) valve control panel,
- (d) high level alarm,
- (e) sump pumps,
- (f) water fountain,
- (g) sand ejectors and inlet transition fittings, and
- (h) all other work required for furnishing, installing, painting, and testing all equipment, complete with appurtenances and accessories.

Sect. 26.2 METERING EQUIPMENT. The 30 in. flow tubes shall be equal to B-1-F Industries, Inc. Model DFT 30B Dall Flow Tube with cast iron body and bronze tube liner. Tubes shall have a rated maximum capacity of 12 mgd at a differential pressure of 60 in. of water.

Each tube shall be equipped with a telemetering system equal to B-1-F Industries, Inc. Chronoflow wide range telemetering system. Each system shall include two Chronoflo Model No. 0230-01 transmitters, a Chronoflo Series J Model No. 233-04 receiver, and relay.

The transmitters shall have a 20 to one range, from 12 mgd to 0.6 mgd with a 60 in. range tube on the high transmitter. The transmitters shall be mounted in waterproof, wall mounted cases and shall have power cut-off toggle switch with fuse and over range protection.

The receivers shall be mounted in the valve control panel and shall have a 6 in. 270 deg. indicator dial.

The 60 in. flow tube shall be equal to B-1-F Industries, Inc. Model DFT 60C Dall Flow Tube with cast iron body and bronze tube liner. The tube shall have a rated maximum capacity of 75 mgd at a differential pressure of 60 in. of water.

The tube shall be equipped with a telemetering system equal to B-1-F Industries, Inc. Chronoflo telemeter. The system shall include a CTUA4 Chronoflo transmitter and a Series B totalizer-indicator-recorder.

The transmitter shall have a 10 to one range, from 75 mgd to 7.5 mgd with a 60 in. range tube. The transmitter shall be mounted in a submersible case and shall have power cut-off toggle switch with fuse.

The receiver shall continuously record the rate of flow on 12 in. diam, 24 hour charts having uniform graduations, reading directly in mgd.

The indicators shall be enclosed in the same case with but separate from the recording and totalizing dials, and shall have uniformly spaced graduations reading directly in mgd.

The totalizer shall be of the seven-digit straight-reading cyclometer type.

The Contractor shall furnish a year's supply of charts and ink.

All metering equipment shall be suitable for operation on 110 volt, single phase, 60 cycle service.

Sect. 26.3 LOSS OF HEAD GAGES. Gages shall have a diaphragm unit equal to B-I-F Industries, Inc., Model PULH diaphragm pendulum unit. The unit shall be floor mounted and have air valves, drain plugs, counter weight, strainer, and sediment trap.

Each unit shall be equipped with a potentiometer type position transmitter and indicator equal to B-I-F Industries, Inc., electrically operated valve position indicator. The transmitters shall have waterproof enclosures, rubber covered cables, and plugs.

Indicators shall be mounted in the valve control panel and shall be calibrated to read loss-of-head in feet and tenth of feet.

The constant voltage transformer shall be mounted in the valve control panel and shall be wired to receive the four loss of head gages and the four valve position indicators.

The units shall operate on 110 volt, single phase, 60 cycle service.

Sect. 26.4 VALVE CONTROL PANEL. The valve control panel shall be constructed of bonderized 12 gage rolled steel. The panel shall have hinged sectional doors to permit access to the interior. Hinges shall be noncorrosive. All metal surfaces shall be ground, sanded smooth, and thoroughly cleaned. After cleaning, they shall be given one coat of primer and surfacer, rubbed smooth, and all loose particles removed, and an additional coat of surfacer applied and again rubbed smooth. Not less than three finish coats of air dry lacquer shall be applied as required, to obtain a uniform appearance. Color shall be approved by the Engineer.

The Control Panel shall be completely wired using 600 volt stranded switch-board wire having thermoplastic insulation, sized to conform to the requirements of NEC. All wire shall run openly and shall be bundled and tied for appearance. All wires shall terminate at terminal strips conveniently located near the bottom of the panel and identified for field connection. All relays and electrical devices required to complete the installation and insure the proper operation of the instruments shall be installed in the panel. All equipment mounted on the control table shall be of the semi-flush mounted type. The power supply shall be fused and provided with a cut-off switch.

The constant voltage transformer shall be mounted in the panel and wired to the four loss of head gages and the four valve position indicators.

Switches for pivot valve operation shall be heavy-duty, oil tight, momentary contact, spring return to center, hand-operated, three-position selector switches with nameplates bearing the legend "OPEN-OFF-CLOSE".

Laminated plastic engraved nameplates shall be furnished for each instrument, push-button, and switch mounted on the panel face. All instruments shall be marked for identification on the back of the panel.

Graphic symbols and lines shall not be less than 1/8 in. thick aluminum or plastic, colors as approved, and shall be bonded to the panel with adhesive and screws, and flush finished to present a neat appearance.

Sect. 26.5 HIGH LEVEL ALARM. The Contractor shall furnish and install a pressure switch at elevation 465.5 in the 54 in. diam overflow with provisions for field adjustment. The pressure switch shall be equal to Healy-Ruff Co. Bulletin 756 pressure operated high level alarm switch. The switch shall be mounted on an approved bracket.

The switch shall connect to an existing alarm in the existing Laboratory. The Contractor shall furnish and install an alarm silencer with red pilot light equal to Healy-Ruff Co. alarm silencer, wired to silence the high water alarm. The silencer shall be suitable for operation on 110 volt, 3 phase, 60 cycle service, and shall be mounted in the existing Laboratory.

Sect. 26.6 SUMP PUMPS. Sump pumps shall be equal to Weil Pump Co. SS-800-DR submersible Sump Pumps. Each pump shall be capable of discharging 30 gpm against a total dynamic head of 20 ft. The motor shall be 1/3 hp at 1,750 rpm, waterproof capacitor type, and shall be suitable for operation on 110 volt, single phase, 60 cycle service. Each unit shall be equipped with overload protection, micro-switch control, 20 ft. cable, plug, and adapter.

Sect. 26.7 WATER FOUNTAIN. The water fountain shall be equal to the Halsey W. Taylor Co. Model No. 2542 wall fountain with vitreous china receptor, cast iron wall bracket, and chrome plated fittings. The fountain shall be mounted as approved.

Sect. 26.8 SAND EJECTORS AND INLET TRANSITION FITTING. The sand ejectors will be furnished by the Department and shall be installed by the Contractor.

The Contractor shall furnish and install the inlet transition fitting. The fitting shall be cast of the best quality close grained gray iron conforming to the requirements of ASTM Designation A 48, Class No. 30.

Sect. 26.9 PAYMENT. The lump sum price bid under Item 26 shall cover all costs of furnishing, installing, painting, and testing equipment, complete with appurtenances and accessories, as shown or required, including all work specified in Sect. 26.1.

ITEM 27INSIDE PIPE AND VALVES

Sect. 27.1 WORK INCLUDED. Under Item 27, the Contractor shall furnish, install, paint, test, disinfect, and place in satisfactory operation inside pipe and valves, within the outside vertical faces of structures, complete with appurtenances and accessories, as shown, specified, or required. The work required includes:

- (a) furnishing, installing, painting, testing, and disinfecting of;
  - (1) prestressed reinforced concrete pipe,
  - (2) cast iron pipe
  - (3) cast iron soil pipe,
  - (4) wrought-iron pipe,
  - (5) steel pipe,
  - (6) copper tube,
  - (7) clay pipe,
  - (8) fittings and specials,
  - (9) couplings,
  - (10) expansion joints,
  - (11) pipe and valve hangers and supports,
  - (12) sleeves and castings,
  - (13) pivot valves,
  - (14) gate valves,
  - (15) globe valves,
  - (16) check valves,
  - (17) plug drain valves
  - (18) ball valves
  - (19) solenoid valves
  - (20) hose bibbs
  - (21) corporation stops,
  - (22) valve appurtenances,
  - (23) cast iron overflow valve,
  - (24) grate for pipe bell, and
  - (25) access panels;
- (b) removing and relocating existing pipe, fitting, couplings, pipe hangers and supports, removing and replacing existing tile disturbed by pipe installation, modifying existing concrete, and furnishing and placing non-shrink grout;
- (c) connecting to existing and new pipe, fittings, couplings, sleeves and castings, valves, and equipment in this and other items; and
- (d) all other work required for furnishing, installing, painting, testing, disinfecting, and placing in satisfactory operation inside pipe and valves, complete with appurtenances and accessories, with the exception of work specifically excluded under Sect. 27.3.

Sect. 27.2 REQUIREMENTS. The Contractor shall furnish an aluminum blind flange, not shown, for the 54 in. overflow pipe in the Regulator House. The flange shall be 58 in. diam, of aluminum alloy 6061-T6, and shall be capable of sustaining a pressure of 20 psi. The flange shall be provided with a neoprene gasket cemented to the flange, 12 hinge 'C' clamps for easy installation, an

approved eyelet fastened to the flange for hanging, and an approved hook mounted on the wall to hang the flange.

Cast iron overflow valves shall be as shown, and similar to existing units. Valves shall be gray iron castings conforming to the requirements of ASTM Designation A 48, Class No. 30. The covers shall be hinged, and an approved rubber gasket shall be cemented on. An eye shall be provided on the cover for lifting purposes. Hinge pins shall be  $3/4$  in. silicon bronze and shall have a loose fit to permit easy removal. Brass cotter keys shall be furnished to lock pins in place.

Access panels shall be equal to Zurn Industries, Inc. stainless steel Type B Inspector.

Grate for pipe shall be equal to James B. Clow & Sons No. F-3810 cast iron flat grating.

Prior to removing and relocating any existing pipe and making connections to existing pipe, the Contractor shall notify the Department and obtain its permission for taking pipe out of service. Removal and relocation of existing and connecting to existing pipe shall be carried out in an approved and workmanlike manner, under the direct supervision of the Department and the Engineer, at a time convenient to the Department. The Contractor shall take special precautions in removing and relocating pipe, making certain not to damage any adjacent materials. Damages caused by the Contractor's operations shall be repaired, to the satisfaction of the Engineer, at the Contractor's expense.

The Contractor shall modify existing concrete for pipe installation by cutting through concrete in an approved and workmanlike manner. As soon as cutting is completed, loose material shall be removed by washing. If existing reinforcement is uncovered or exposed during cutting of concrete, the Engineer shall be notified so that an inspection shall be made, and orders as to procedure issued. Existing reinforcement shall not be cut until approval is given by the Engineer.

Non-shrink grout shall be as specified in General Specifications Sect. S 2.14.

Sect. 27.3 PAYMENT. The lump sum price bid under Item 27 shall cover all costs of furnishing, installing, painting, testing, disinfecting, and placing in satisfactory operation inside pipe and valves, within the outside vertical faces of structures complete with appurtenances and accessories, as shown or required, including all work specified in Sect. 27.1.

Split clay pipe for filter underdrains is measured for payment under Item 25, and is not included for payment under Item 27.

ITEM 28ARCHITECTURAL WORK

Sect. 28.1 WORK INCLUDED. Under Item 28, the Contractor shall furnish, install, and paint architectural work, complete with appurtenances and accessories, for the Regulator House, Sand Washer Houses, and modify an existing Regulator House as shown, specified, or required. The work required includes furnishing and installing of:

- (a) masonry,
- (b) roofing and flashing,
- (c) hung ceiling
- (d) carpentry,
- (e) transparent cover,
- (f) doors,
- (g) windows,
- (h) glass and glazing
- (i) bronze plaque,
- (j) modifying existing Regulator House, and
- (k) all other work required for a complete and satisfactory installation of architectural work, complete with appurtenances and accessories.

Sect. 28.2 MASONRY. In general, masonry work shall include furnishing and installing of concrete block, tile, wall reinforcement, mortar, and calking.

Concrete Block. Concrete block shall conform to the requirements of Federal Specification SS-C-621, Types I (load bearing) and II (nonload bearing). Materials shall consist of portland cement, well graded sand for the fine aggregate, and crushed stone, gravel or grit for the coarse aggregate. Shells shall have a minimum thickness of 1-1/4 in. for 8 in. thick blocks. The average compressive strength of five or more units shall be 700 psi for load bearing block and 350 psi for nonload bearing block. Pressure compacting equipment shall be in good working order so that units are uniformly produced and molds are properly stripped. High or low pressure steam curing shall be required with final curing in a temperature above 40 deg F for 7 days before delivery to the site.

All 8 in. block shall be load bearing, and all other block shall be non-load bearing.

Block shall have a nominal 8 in. by 16 in. face size, of the thickness shown. Units shall be full block, half block, and other shapes and sizes as required. Block shall have reasonably smooth faces, without broken edges, where exposed in the finished work. Closure blocks with finished ends shall be furnished for wall ends, reveals, returns, sills, and heads.

Block shall be set with cores vertical. Bearing surfaces of the block shall have a mortar bed placed between faces of block and cores. Mortar shall not be placed on the webs. Joints shall be approximately 3/8 in. and mortar shall be as specified hereinafter. Vertical joints between blocks shall have ends of block buttered with mortar. Joints shall be trowelled smooth and flush with face of units and tooled to a slightly concave surface where exposed in the finished work. Walls shall be laid in a running bond, (stacked bond for the Sand Washer Houses) plumb and true, having vertical joints centered on

units above and below. Where blocks are exposed in the finished work, adjustments shall be made at corners of rooms and spaces to avoid the use of cut block in the wall area. Field cutting and fitting shall be done with a power driven saw or carborundum disc, whenever the arrises of the pieces are exposed to view, in such a manner as to provide true and even edges.

Core-filled block shall also be provided as shown or required for anchors, dowels, etc. The concrete fill shall consist of one part portland cement, two parts sand and two parts coarse aggregate, by weight. The maximum size of coarse aggregate shall be  $\frac{1}{2}$  in. There shall be sufficient water to produce a slump of 5 to 7 in.

Where block is set on existing concrete (Sand Washer Houses), the Contractor shall chip the existing surface until sound concrete is exposed. He shall then relevel the surface with mortar. The Contractor shall fill the existing wall opening with concrete and sealer. Work shall conform to the applicable provisions of Sect. 28.11.

Exterior surfaces of all block shall be sprayed with a silicone base water repellent equal to A. C. Horn Co. Dehydratine No. 22. Repellent shall cover 150 to 200 sq. ft. per gal.

Before applying the repellent, the Contractor shall clean off all surfaces and sweep off all dust and rubbish. The material shall be applied in strict accordance with the recommendations of the manufacturer. The repellent shall not be applied in wet or cold weather, or when surfaces are damp.

Tile. Floor tile shall be 6 in. by 6 in. by  $\frac{1}{2}$  in. tile equal to Murray Tile Co. Inc. standard grade quarry floor tile. Tiles shall have edges ground after firing, and shall have triangular serrations on the back of each unit. The cove base shall be of 5 in. by 6 in. cove base tiles. Tile shall be set in a mortar setting bed of one part portland cement, 5 parts sand, and  $\frac{1}{10}$  part hydrated lime. Tile shall be laid with  $\frac{1}{4}$  in. joints and pointed with mortar of one part hydrated lime. Before the mortar setting bed is placed, floors shall be free from dirt, oil, grease, and foreign matter.

Wall tile in the Clear Well Room shall be 6 in. by 6 in. by  $\frac{3}{8}$  in. straight edge tile laid with straight joints. All outside corners shall be formed with integral bullnoses, 6 in. by 6 in. bullnose tiles, and all inside corners shall be round. All joints shall be uniform  $\frac{1}{16}$  in. string joints. Expanded metal lath shall be fastened to lintels to secure mortar setting bed. Tile shall be equal to The Mosaic Tile Co. tile. Color shall be as selected by the Engineer.

Prior to placing tile in the Clear Water Well, the floor and walls shall be roughened, as specified in General Specifications Sect. S 2.15, and covered with 5 coats of waterproofing A. C. Horn Co. Metalon waterproof material.

The walls and floors in the clear well shall be lined with 4 in. by 4 in. by  $\frac{3}{8}$  in. vitreous white pavers equal to U.S. Ceramic Tile Co. tile and shall be set with  $\frac{1}{8}$  in. straight joints.

Tile for the existing Regulator House shall match the existing tile for size, shape, and color.

Samples of all tile shall be submitted for approval.



Field cutting or fitting shall be done with a power driven saw in such a manner as to provide true and even edges. All joints shall be compactly tooled and slightly concave. Mortar shall be as specified hereinafter. Tile shall be cleaned of all excess mortar, with cloth or burlap, when work is suspended at noon and at the end of each day. At the completion of the tile work, the walls shall be scrubbed with a brush using soap and water. No acid or abrasive shall be used in cleaning.

Tile shall be packed in suitable cardboard, paper cartons, or trays to protect them from chipping. Utmost care shall be taken in unloading and stacking tile. If it is necessary to store tile units outside, they should be placed on a platform and covered with heavy tarpaulin. The units shall not be removed from the cartons until they are in the positions needed.

Wall Reinforcement. Wall reinforcement shall be a cold-drawn steel wire conforming to the requirements of ASTM Designation A 82. The reinforcement shall consist of two side rods and a cross rod in a trussed design. The two side rods shall be deformed bars and shall be electric butt welded to the cross rods. The reinforcement shall be galvanized after forming. Wall reinforcement shall be equal to DUR-O-WAL Products, Inc., Extra Heavy Dur-O-Wal.

Wall reinforcement shall be placed every joint (8 in.) for exterior walls and every second mortar joint (16 in.) for interior walls, throughout the masonry or as shown. Reinforcement shall be 2 in. less in width than the nominal thickness of the wall. There shall be a minimum 6 in. lap at splices to insure continuity.

Anchors. As block work proceeds, the Contractor shall furnish and install all anchors, ties, and dowels required.

Mortar. Portland cement shall conform to the requirements of ASTM designation C 150, Type I.

Quicklime shall conform to the requirements of ASTM Designation C 5. Hydrated lime shall conform to the requirements of ASTM Designation C 6.

Sand shall conform to the requirements of ASTM Designation C 144, except that 100 percent shall pass No. 8 sieve and 95 percent shall pass No. 16 sieve.

Lime putty shall be made from hydrated lime except that quicklime may be used when time and facilities are available for aging. Suitable precautions shall be taken to protect the putty from sun exposure and to prevent excessive evaporation in storage.

Hydrated lime shall be mixed with the amount of water specified in the manufacturer's directions to make a putty. It shall not be used for 15 minutes after mixing. Lump free putty shall be made by sifting the lime into the water; otherwise the putty shall be worked through a sieve or the putty made smooth in a satisfactory manner.

Pulverized quicklime shall be slaked in batches by sifting it into the quantity of water specified by the manufacturer to make a thick cream. Precaution shall be taken to prevent premature cooling during the hydration period. Slaked quicklime shall be worked through a No. 10 sieve and stored for at least 72 hours before using.

Twenty-five lb. of quicklime or 40 lb. of hydrated lime shall be considered as equal to one cu. ft. (one sack) of portland cement.

Mortar for concrete block, and tile shall consist of one part portland cement, one part lime putty and six parts sand, by volume, except as otherwise specified.

Mortar shall be mixed in batches each of which shall be used before it has begun to set. The ingredients shall be accurately measured by volume and combined in the specified proportions with only sufficient water added thereto to make the mortar workable. Mortar shall be mixed preferably in a batch mixer, but may be mixed by hand, to a uniform consistency and color. Each batch shall be completely discharged from the mixer drum before loading a new batch.

Retempering of mortar and use of other retarding admixtures will not be permitted.

Calking. The calking compound shall be a gray liquid polysulfide calking compound which when properly applied, will set up a tough resilient rubber seal with good bonding qualities. The compound shall be equal to Del Protective Coating Co. Synthetic Rubber Compound.

The calking compound shall be delivered to the work in original unopened containers marked with the manufacturer's name and grade of the product.

The calking compound shall be applied by means of a suitable type of calking gun or by hand calking tools. Care shall be taken not to apply calking to any surface outside of joints to be caked. All surplus calking compound shall be removed and the surfaces cleaned.

Sect. 28.3 ROOFING AND FLASHING. In general, roofing and flashing work shall include furnishing and installing of roof insulation, built-up roofing, asphalt shingles, roof slag or gravel, canopy water proofing, bituminous flashing, metal flashing, and roof drains.

Roof Insulation. Roof insulation and insulating cant shall be a tough sugar cane fiberboard, conforming to the requirements of ASTM Designation C 208, Class C, equal to Celotex Channel-Seal Roof Insulation and Cant Strip. The roof insulation shall be one in. thick and the insulating cant shall be 2 in. thick.

The insulation shall be protected from the weather, and shall be kept dry before, during, and after application.

Only as much roof insulation shall be laid as can be covered by finished roofing in any one day. Channeled or beveled edges shall face the roof deck. Boards shall be laid in parallel courses with transverse joints in each course staggered with those of adjoining courses. Adjoining edges of boards shall be brought to a moderate contact, not forced into place. Where roof meets vertical surfaces, the insulation shall be cut neatly.

Water cutoffs shall be installed at the first insulation joint away from and parallel to all vertical walls, and around chimneys, roof drains, vents, pipes, ducts, and ventilators. Water cutoffs shall be strips of saturated roofing felt 8 in. to 12 in. wide and shall be applied by mopping in hot coaltar

pitch to the base sheet, carried up and over edge of the insulation and mopped to top surface of the insulation.

The surface of the poured concrete roof slabs shall be smooth, broomed clean so as to be free from dirt and loose material. The deck shall be perfectly dry before insulation is applied.

Upon the dry surface of roof deck a heavy mop coating of hot coal-tar pitch, conforming to the requirements of ASTM Designation D 450, Type A, shall be applied. The deck shall be spot-mopped or channel-mopped, keeping back approximately 4 in. from roof deck joints. Each insulation board shall be firmly embedded in the hot pitch. Only sufficient area to provide complete embedment of each board shall be mopped at a time.

The glass fiber insulation as shown shall be equal to Fiberglas PF Insulation.

Insulation batts shall be equal to Gold Bond Twinsulation full thick batt blankets enclosed in an envelope of aluminum.

Built-Up Roofing. The built-up roofing shall be equal to Barrett "Specification" Roof, No. 125-NO, bonded for 25 years. There shall be a surety bond guarantee furnished for the built-up roofing and bituminous flashing, to insure free maintenance, covering a period of 25 years from date of completion.

The roof insulation shall be uniformly coated with hot coal-tar pitch, conforming to the requirements of ASTM Designation D 450, Type A. Four plies of coal-tar saturated roofing felt, conforming to the requirements of ASTM Designation D 227, shall be laid on the mopped insulation. Each sheet shall be lapped 27-1/2 in. over the preceding one and mopped with pitch to a width of 25-1/2 in. of the lap of each sheet, so that pitch shall be held back 2 in. from the upper edge of each sheet. Additional plies of built-up roofing shall be furnished as shown or required. Care shall be taken during application that felt is laid without wrinkles or buckles. Approximately 175 lb. of pitch shall be used for constructing each 100 sq. ft. of completed roof. The pitch shall be heated above 400 deg. F and shall be applied to the roof between 350 deg. F and 375 deg. F.

Asphalt Shingles. Asphalt shingles shall be 36 in. by 15 in. by 300 lb. shingles equal to Bird & Son Inc., Architect shingles with cementing tabs and #15 roofing felt. Shingles shall be installed in accordance with the recommendations of the manufacturer. Color to be selected by the Engineer.

Roof Slag or Gravel. Roof slag or gravel shall be as approved, ranging in size from  $\frac{1}{4}$  in. to  $\frac{5}{8}$  in., dry and free from dirt.

The built-up roofing shall be uniformly coated with coal-tar pitch, conforming to the requirements of ASTM Designation D 450, Type A. The pitch shall be dipper poured over the entire roof surface into which, while hot, shall be embedded not less than 300 lb. slag or 400 lb. gravel for each 100 sq. ft.

Canopy Waterproofing. The top surfaces of canopies shall be given one coat of A. C. Horn Co. Horn Water Foil KB-55 and three coats of Dehydratine No. 22.

Bituminous Flashing. Bituminous base flashing shall consist of five plies of coal-tar saturated roofing felt conforming to the requirements of ASTM

Designation D 227 and one ply of mineral surfaced felt conforming to the requirements of ASTM Designation D 249.

Over the built-up roofing covering the insulating cants, a heavy uniform layer of bituminous plastic cement, conforming to the requirements of Federal Specifications SS-C-153, Type I, shall be applied. One ply of saturated roofing felt, cut to the proper width, shall be embedded into the cement. Ends of strips shall be lapped one inch. This procedure shall be repeated until five layers of cement and five plies of saturated roofing felt have been applied. Each felt ply shall be set in separately and shall break joints with the underlying ply. After all four plies have been placed, a uniform trowel coat of bituminous plastic cement shall be applied. One ply of mineral surfaced felt shall then be embedded into the cement. The bituminous base flashing shall be nailed into the wood blocking with 1-1/2 in. nails through flat tin discs on 12 in. centers.

Metal Flashing. Aluminum flashing, and cap shall conform to the requirements of ASTM Designation B 209. The flashing shall be alloy clad 3004-H34 for the thicknesses shown. Seams shall be flatlock seams and shall finish not less than 3/4 in. wide. Nails shall be aluminum.

Flashing shall be calked, where shown, with an approved plastic cement.

Sheet lead flashing shall be 3 lb. lead conforming to the requirements of Federal Specification QQ-L-201a, Grade B.

Lead flashing shall be properly inserted into the built-up roofing at roof drains and clamped under the flashing ring of the roof drain with the roofing. The flashing shall extend 8 in. in all directions beyond the drain and shall be covered with felt and pitch. Just prior to setting lead flashing in hot pitch, the lead shall be heated with a blow torch.

Roof Drains. Cast iron roof drains shall each have a double drainage flange, weepholes, bottom outlet for inside calk, cast iron removable combined high dome and sediment cup, non-puncturing flashing clamp device with integral gravel stop, equal to Josam Manufacturing Co. Series 430.

Sect. 28.4 HUNG CEILING. The hung ceiling shall consist of carrying channels, "U" channels, aluminum angles, hanger straps, clips, drill anchors, and fasteners, equal to Johns-Manville Type "U" Channel System. The asbestos-cement panels shall be equal to Johns-Manville 24 in. by 24 in. Transite Acoustical Panels.

Sect. 28.5 CARPENTRY. Carpentry work shall include wood headers, wood blocking, wood nailing strips, and other lumber. Wood and lumber shall be Douglas fir or longleaf southern pine, for the sizes shown, and shall be creosoted conforming to the requirements of AWPA Standard C18. After treatment, creosoted wood and lumber shall be handled and protected in accordance with the requirements of AWPA Standard M4 for maximum protection of damaged material or material cut into after treatment. Maximum protection shall consist of two coats of creosote followed by a heavy application of coal tar pitch. Anchor bolts, nails, screws, and other accessories shall be furnished as required.

Plywood for the canopies shall be a Douglas fir plywood veneer of the thickness shown conforming to the requirements of U.S. Commercial Standard

USCS45. The plywood shall be an exterior type made with hot-pressed phenolic resin adhesive, that is insoluble, irreversible and moldproof.

Wood and lumber for the Sand Washer Houses shall be treated with a process equal to Wolman Preservative Dept. of Koppers Co., Inc. Wolmanized lumber.

Exterior wood surfaces shall be given one coat of primer and two finish coats of paint. The primer and finish paint shall be equal to Pittsburgh Plate Glass Co., Snolite house paint primer 50-47 and Snolite house paint finish 50-48.

Sect. 28.6 TRANSPARENT COVER. The transparent cover shall be made of 1/2 in. plate glass mounted in an aluminum frame as detailed.

Sect. 28.7 DOORS. Doors shall be 1-3/4 in. flush type aluminum doors equal to Panelfab Products, Inc. or Kawneer Co. doors. Door shall be constructed of 0.032 in. thick aluminum laminated to 1/8 in. hardwood and bonded to a phenolic resin impregnated honeycomb core and a 0.125 in. extruded aluminum frame with a neoprene base adhesive. The honeycomb core shall extend to the full height and width of the door. Louvers and vision panels shall be provided where shown. The door shall be given two coats of waterclear methacrylate lacquer.

Lock stiles shall be molded to allow 1/8 in. clearance. Lock and butt stiles shall be accurately mortised and reinforced to receive locks and butts. Hardware shall be as specified hereinafter.

Door leaf dimensions shall allow for clearance of 1/8 in. at head and jambs, 1/4 in. at meeting rail of double doors and 5/8 in. at sill.

All exterior doors shall be adequately weatherstripped with vinyl weatherstripping.

Door frames shall be extruded aluminum and shall be set in masonry with drill anchors using stainless steel bolts, and aluminum corrugated anchors.

Frame shall be machined for attachment of hardware, including mortising, reinforcing and drilling and tapping.

Doors and frames shall be erected plumb and true, with all hardware left in proper working order.

The Contractor shall furnish and install all hardware as listed in the Hardware Schedule. The Hardware Schedule is not to be construed as complete or correct. If a hardware set for any particular door or doors are not included therein, such door or doors shall be provided with hardware sets like that scheduled for similar doors. Where errors or omissions occur in the schedule, the Contractor shall furnish the proper hardware.

Hardware shall be properly packed and designated for correct location.

Hardware shall be keyed alike, to match the existing buildings, and a total of three keys are to be furnished. Permanent records of the keying shall be kept at the manufacturer's factory.

Any hardware which is defective in finish or operation shall be replaced by the Contractor.

All hardware, except for butts, shall be equal to Sargent & Co. hardware. Butts shall be equal to The Stanley Works butts.

#### HARDWARE SCHEDULE

##### Set No. 1

1-1/2 pr.	Butts	BB191 US 26D	4-1/2" x 4" NRP
1	Lockset	AN7737GF	
1	Closer	EN45VH	
1	Bracket	EN53	

##### Set No. 2

1-1/2 pr.	Butts	BB191 US 26D	4-1/2" x 4"
1	Lockset	AN7715GF	
1	Closer	EN44VH	
1	Bracket	EN53	
1	Stop	AN20	

##### Set No. 3

1-1/2 pr.	Butts	BB191 US 26D	4-1/2" x 4"
1	Lockset	AN7715GF	
1	Closer	EN44VH	
1	Stop	AN35	

##### Set No. 4

1-1/2 pr.	Butts	BB191 US 26D	4-1/2" x 4" NRP
1	Lockset	AN7737GF	
1	Closer	EN45VH	
1	Stop	AN20	

Thresholds for interior doors shall be equal to American Abrasive Metals Co. Alumalun Style T, with recess, abrasive aluminum threshold. Thresholds for exterior doors shall be equal to American Abrasive Metals Co., Alumalun Style M Special abrasive aluminum threshold. Thresholds shall be of the sizes shown, anchored, by means of flat head stainless steel anchors, and set in grout. Grout shall consist of one part portland cement, one part lime putty, and six parts sand, by volume.

Grout and Calking. Grout for door frames shall consist of one part portland cement, one part lime putty and six parts sand, by volume, as specified under mortar in Sect. 28.2.

Calking at door frames shall be as specified in Sect. 28.2.

Sect. 28.8 WINDOWS. All windows shall be aluminum. Aluminum projected windows shall include fixed and ventilated windows, standard mullion cover plates, anchors and clips with shims as required.

Aluminum projected windows shall be extruded aluminum shapes with  $1/8$  in. minimum thick sections, designed for outside glazed windows. Outside frame members shall be unequal leg sections  $1-1/2$  in. and  $1-5/8$  in. deep horizontally, and shall provide  $5/8$  in. wall bearing. Combined outside frame and ventilator frame depth horizontally shall be  $1-3/4$  in. and vertically shall be  $2-7/16$  in. Corners of outside and ventilator frames and muntin to frame joints shall be coped, tenoned, and riveted. Muntins shall be  $1-1/2$  in. deep with intersections mechanically formed, without bending or distortion to obtain maximum strength.

Ventilators shall have two weathering contacts parallel to the face of window. All ventilators shall project out and shall open out at bottom. The ventilators shall have sliding friction pivots with non-abrasive shoes and concealed compression springs and balance arms which position the ventilators up to 50 deg. maximum opening.

Adjustable mullions from  $3-1/8$  in. to  $2-3/8$  in. wide shall provide for expansion and contraction, with the flat surface outside. Mullion cover plates shall be provided.

Anchors, clips, and bolts shall be of aluminum.

White bronze handles shall be furnished for operation of all ventilators.

Windows shall be equal to The William Bayley Co. aluminum projected windows.

Windows shall be installed plumb and square, properly aligned and securely anchored, with all hardware attached.

The windows shall remain weathertight and operate smoothly and easily under all conditions without excessive play, rattle, sagging, or distortion.

The exposed surfaces of all aluminum shall have a No. C-1 satin finish. The surface shall be treated in the shop with a dilute aqueous solution of alcoholic phosphoric acid containing organic grease solvents for removing all oil and foreign substances after which it shall be thoroughly dried. Aluminum work so treated shall then be shop coated with two heavy coats of water clear methacrylate lacquer, resistant to alkaline mortar, plaster, etc.

Provisions for Screens. The Contractor shall make provisions to fasten screens in window frames.

Grout and Calking. Grout for window frames shall consist of one part portland cement, one part lime putty and six parts sand, by volume, as specified under mortar in Sect. 28.2.

Calking at window frames shall be as specified in Sect. 28.2.

Sect. 28.9 GLASS AND GLAZING. Door and window glass shall be  $1/8$  in. thick double strength, A quality, clear window glass, and shall conform to the requirements of Federal Specification DD-G-451a. Window glass shall be equal to Libbey-Owens-Ford Glass Co. or Pittsburgh Plate Glass Co.

Glass shall be delivered when and as required and stored in a safe location. It shall not be unpacked until it is to be used. Each light of glass

shall bear the manufacturer's label identifying the kind and quality. The labels shall remain on the glass until after inspection and approval.

The compound for glazing shall be an approved special elastic non-drying glazing material equal to L. Sonneborn Sons, Inc. or Pecora Paint Co. Inc.

Glass, glazing beads, and moldings shall be bedded with compound and the spaces between the glass and adjoining metal shall be well filled. Glazing shall be done after the doors, windows, and similar work have been installed. Compound shall be finished smooth and flush with the edge of the glazing bead and window. Glazing bead and moldings shall be neatly set in compound and fastened with screws where required. Corners shall be neatly formed. Surplus compound and its markings shall be carefully removed from doors, windows, and adjoining work while still fresh.

The Contractor shall examine all glazing and shall fill voids and hollow spaces; imperfect workmanship shall be made good.

All measurements and sizes shall be taken and verified by the Contractor and he shall be responsible for the accurate fitting of all glass and glazing.

All glass shall be marked in a manner to indicate that openings have been glazed.

All broken, cracked, imperfect or improperly set glass shall be removed and replaced with new glass by the Contractor at his own expense until the expiration of the maintenance period. All work shall be washed and thoroughly cleaned of dirt, paint, and plaster.

Sect. 28.10 BRONZE PLAQUE. The bronze plaque shall be equal to international Bronze Tablet Co., Inc. Civic Tablet Pattern UN-4654.

The plaque shall be installed where directed, in an approved manner.

The plaque shall be 20 in. by 30 in. and shall be cast of statuary bronze and have the following composition, or as approved: Copper 87%, Tin 3%, Lead 5%, and Zinc 5%. The plaque shall have a matted background, 1/4 in. thick, and shall have extended block lettering, raised 1/8 inch. Letters and beveled border shall have a polished satin finish.

The following lettering shall appear on the plaque. Allowance shall be made for two extra lines of lettering which may be required.

BOARD OF WATER COMMISSIONERS  
SPRINGFIELD, MASSACHUSETTS

COMMISSIONERS

Thomas J. O'Connor, Jr., Mayor  
Louis J. Gentile, Chairman  
Arthur J. Stein

.....  
Peter C. Karalekas, Chief Water Engineer

ADDITIONAL WEST PARISH FILTERS  
Contract 54

....., Contractor  
CLINTON BOGERT ENGINEERS  
CONSULTANTS



Sect. 28.11 MODIFYING EXISTING REGULATOR HOUSE. The Contractor shall remove the door and door frame in an existing Regulator House, in an approved and workmanlike manner. Concrete and steel reinforcement shall then be placed, and the concrete finished to match the existing walls. The contact surface of the old concrete shall be thoroughly cleaned by means of stiff brushes or other tools and by application of a stream of water under pressure, if directed. The surface shall be clean and wet but free from pools of water at the moment the fresh concrete is placed. Care shall be taken to remove any laitance, waste mortar, and other substance which would prevent complete adhesion. Dowels shall be installed as shown. The Contractor shall drill holes, approximately one in. larger than the diameters of the dowels, in the existing concrete. The holes shall be cleaned of all loose particles, and filled with non-shrink grout, as specified in General Specifications, Sect. S 2.14.

For a minimum of 4 hours prior to placement of concrete or non-shrink grout, the surfaces of cuts and holes shall be kept continuously wet.

The new concrete shall be tooled as shown and the groove filled with joint sealer, as specified in General Specifications Sect. S 2.16.

Sect. 28.12 PAYMENT. The lump sum price bid under Item 28 shall cover all costs of furnishing, installing, and painting architectural work for the Regulator House and the Sand Washer Houses, complete with accessories, and modify an existing Regulator House as shown or required, including all work specified in Sect. 28.1.

ITEM 29HEATING AND VENTILATING WORK

Sect. 29.1 WORK INCLUDED. Under Item 29, the Contractor shall furnish, install, paint, test, and place in satisfactory operation heating and ventilating work, complete with appurtenances and accessories, as shown, specified, or required. The work required includes furnishing and installing of:

- (a) earth excavation, backfill, and foundation material, including all applicable work listed in Sect. 1.1, Sect. 4.1, and Sect. 6.1;
- (b) concrete and steel reinforcement for equipment pads;
- (c) fuel oil tank;
- (d) heater and accessories;
- (e) thermostat;
- (f) flue and fittings;
- (g) roof ventilators;
- (h) ductwork;
- (i) louvers, registers, grilles;
- (j) electric heaters; and
- (k) all other work required for a complete and satisfactory installation of heating and ventilating work, complete with appurtenances and accessories, with the exceptions of work specifically excluded under Sect. 29.11.

Sect. 29.2 RULES AND REGULATIONS. All materials and equipment furnished, and all workmanship shall be in accordance with the latest rules and regulations of the National Board of Fire Underwriters and all requirements prescribed under local laws.

Sect. 29.3 FUEL OIL TANK. The fuel oil tank shall be a minimum 1/4 in. thick steel, of all welded construction, with dished heads, having a capacity of 1,500 gal., and shall be Underwriter approved and bear a label so attesting. The tank shall be placed in a horizontal position with a slope of 1/8 in. per ft. to drain, and supplied with fill, draw, vent, and gage openings at top. The vent pipe shall terminate in an iron body, cadmium plated, mushroom type, tamperproof vent cap. Fill pipe shall terminate in a locked type fill box with standard threaded type filling pipe and standard threaded cover reading "Fuel Oil". Fuel oil gage shall be mounted, as approved, in the Regulator House. Tank shall be brush coated on the outside with two coats of paint equal to Koppers Bitumastic 50, heavily applied.

Fuel oil gage, alarm in vent, and foot valve shall be equal to Preferred Utilities Co.

The fuel oil tank shall be filled with #2 oil and tested for satisfactory operation.

Sect. 29.4 HEATER AND ACCESSORIES. The heater shall be equal to Lennox Industries Inc. OG4-490 Series UP-FLO industrial heater. The heater shall operate on No. 2 oil and shall have an output of 400,000 Btu per hour. The primary heat exchanger shall be constructed of 16 gage stainless steel and the secondary heat exchanger constructed of 16 gage aluminized steel.

The unit shall be equipped with the following items:

- (a) one hp blower;
- (b)  $\frac{1}{2}$  hp combustion air and induced draft blower;
- (c) mechanical atomizing gun type oil burner consisting of combustion air blower motor, two stage fuel pump, fuel oil filter, nozzle assembly, ignition transformer, solenoid valve, combustion air damper, and Fireye control;
- (d) return air grille;
- (e) AF filter box; and
- (f) automatic RD mixing damper assembly.

The heater shall be wired in accordance with the NEC. The system shall consist of fused disconnect switch, control panel box, fuse blocks, magnetic starters, plug-in master safety control, draft interlock, combination fan and limit control with manual selector switch for summer blower operation, burner switch, and flame sighting device.

Sect. 29.5 THERMOSTAT. The thermostat shall be equal to Minneapolis-Honeywell Regulator Co. Model T42A, with a temperature range of 40 to 80 deg F and shall be mounted on insulated brackets.

Sect. 29.6 FLUE AND FITTINGS. The flue shall be equal to Hart & Cooley Mfg. Co. Metalvent vent pipe. The flue shall consist of an aluminum interior pipe and an exterior galvanized steel pipe with an insulating air space and gastight joints. The flue cap shall be equal to Hart & Cooley Mfg. Co. bird-proof Metal-Cap.

Sect. 29.7 ROOF VENTILATORS. Roof ventilators shall be equal to Allen Cooler and Ventilator, Inc. Type "C" aluminum turbine ventilator with Type A-3 base.

Sect. 29.8 DUCTWORK. Ducts shall be of aluminum alloy 3003-H14. Aluminum thicknesses, bracing, and construction shall be as specified in the Heating, Ventilating Air Conditioning Guide. Flush seams shall be used on straight runs and Pittsburgh seams shall be used at corners. Canvas flexible connections shall be installed where shown. All seams shall be riveted and made airtight. Ducts shall be suitably supported with approved aluminum supports. Dampers shall be installed where shown.

Sect. 29.9 LOUVERS, REGISTERS, AND GRILLES. Louvers shall be all aluminum equal to Swartout Co. louvers. Insect screens shall be provided for louvers in ceiling and exterior walls.

Registers shall be all aluminum equal to Carnes Corp. Model No. 500 register.

Grilles shall be all aluminum equal to The Harrington & King Perforating Co., Inc. plain lattice grille.

Louvers, registers, and grilles shall be installed complete with aluminum clip angles, drill anchors using type 316 stainless steel bolts, and accessories.

ITEM 30ELECTRICAL WORK

Sect. 30.1 WORK INCLUDED. Under Item 30, the Contractor shall furnish, install, paint, test, connect, and place in satisfactory operation electrical work, complete with appurtenances and accessories, as shown, specified, or required, including all materials, equipment, and devices for: adding a new service switch in the existing Laboratory; revising existing underground distribution service, and providing additional underground distribution service; and providing switching, distribution, control, lighting, receptacles, conduit, and wiring and grounding systems. The work required includes making excavations, placing backfills, furnishing and placing foundation material, furnishing and placing concrete and steel reinforcement, and furnishing and placing hangers and supports, including all applicable work listed in Sect. 1.1, 4.1, 6.1, 9.1, and 10.1.

Electrical equipment and devices furnished under other items shall be installed, connected, tested, and placed into service under Item 30.

Sect. 30.2 RULES AND REGULATIONS. All work shall comply with the latest rules and regulations of the National Board of Fire Underwriters, the National Electrical Code, the utility company and the local Electric Codes. The Contractor shall secure, pay for, and deliver to the Engineer all required certificates of inspection and all required permits.

Sect. 30.3 SOURCE OF SUPPLY OF ELECTRIC CURRENT. The source of supply of electric current for operation of permanent equipment installed and connected under this Item will be the existing 480 volt, 3 phase, 3 wire, 60 cycles a-c service in the existing Laboratory.

Sect. 30.4 DRAWINGS DIAGRAMMATIC. Conduits are shown diagrammatically only. The layouts do not necessarily show the total number of conduits for the circuits required, nor are the indicated locations or runs intended to show the actual routing of conduits. The Contractor shall furnish, install, and place in satisfactory condition ready for operation all conduits, cables and all other materials needed for the electrical systems as shown. Additional conduits shall be installed by the Contractor wherever needed to complete the installation of the equipment furnished and for all wiring required.

Sect. 30.5 GENERAL. The Contractor shall furnish and install all incoming service equipment and motor control equipment specified and shown. All equipment shall be suitable for operation on 480 volts, 3 phase, 3 wire, 60 cycle a-c and 120/208 volts, single or three phase, 60 cycle a-c systems.

Sect. 30.6 SERVICE. There is at present a 480 volt, 3 phase, 3 wire service in the existing Laboratory. The Contractor shall furnish and install two new 100 ampere, 3 pole, 3 wire, 600 volt fused disconnect switches. One switch shall be installed near the existing wiring trough, in a location approved by the Engineer, and connected to the load side of the meter leads in the wiring trough. From the load side of the switch, furnish and install conduit and wire to existing cable entrance pull box at east side of building. Routing to be approved by the Engineer. From existing cable entrance pull box, furnish and install wire only, through existing conduits and manholes to

existing manhole #3. From existing manhole #3 the Contractor shall furnish and install conduit, wire, pull boxes, etc. to extend new feed wire to new Regulator House as shown. The other switch shall be installed adjacent to the existing 200A CT cabinet and connected to the load side of the meter leads. The Contractor shall furnish and install new conduit and wire to the existing pull box in the basement, and new wires through existing conduits and manholes. Continue service to Sand Washer Houses with direct burial cable. If an empty conduit is available, the Contractor shall clean conduit of all obstructions, and install new feed wire. If an empty conduit is not available, then the Contractor shall use an occupied conduit as selected by the Engineer. The Contractor shall clean the occupied conduit and install new feed wires. Wires shall be properly racked in manholes in an approved manner. All cutting and patching shall be done by the Contractor in an approved manner.

Sect. 30.7 LOCAL SWITCHES. Switches shall be installed 4 ft. 6 in. above the floor at the locations shown, and shall be single pole, double pole, or 3-way as indicated.

The switches shall be of the flush tumbler, heavy duty, indicating type, enclosed in molded composition or bakelite cases. They shall be rated 20 amperes at 125 volts, with "T" rating.

Where switches with pilot lights are shown, the combination shall consist of a switch, as specified above, with a yoke-mounted flush neon pilot light rated 1/8 watt 120 or 220 volt. Pilot light shall be Arrow-Hart #T-1475-220, or approved equal.

Sect. 30.8 WALL RECEPTACLES. Unless otherwise noted, wall receptacles shall be installed 2 ft above the floor at the locations shown.

Duplex convenience receptacles shall be of the grounded type rated 15 ampere at 125 volts, made of brown phenolic composition, Mounting straps shall have plaster ears and shall be arrow #5262 or approved equal.

Watertight type "RW" receptacles shall be 2 wire, 3 pole, rated 20 amperes, 120 volts. They shall be of the grounding, single receptacle type with molded composition or bakelite bodies having machined brass self-aligning contacts. Covers shall be cast brass provided with threaded brass screw caps attached by brass chains. Covers shall be provided with rubber or neoprene gaskets.

Three plugs to fit the "RW" receptacles shall be furnished and delivered to the Engineer. The plugs shall be similar in construction to the receptacles and shall be encased in metal housings provided with clamping nuts and stuffing-gland cable outlets.

Sect. 30.9 PLATES. Receptacle and switch plates shall be of the standard stainless steel satin finish type not less than 0.060 in. thick. The number of gangs shall suit the location as required.

Sect. 30.10 LIGHTING PANEL. The lighting panel in the new Regulator House shall have three phase, four wire mains. Branch circuits shall be single or double pole breakers as shown or noted.

The panel shall be of the dead front type with lug type mains and thermal overload, automatic trip elements. Breakers shall have quick-make and quick-break toggle mechanism for manual as well as automatic operations. Trip

ratings of branch circuit breakers shall be in accordance with capacities of branch circuits.

The lighting panel shall be enclosed in a cabinet constructed of No. 10 U.S. Standard gage steel, continuously welded and galvanized after fabrication. The front shall be of like material, not galvanized, with doors over circuit breakers and trims of proper width. The boxes shall have wiring gutters on all sides. Side gutters shall be at least 4 in. wide. Top and bottom gutters shall be at least 4 in. high.

The door shall be fastened to trims with concealed brass hinges and shall be equipped with a flush type catch.

Lighting panel branch circuit breakers used for control, measuring or auxiliary equipment circuits requiring continuous operation shall be provided with a distinctive marking in the material of the panel front or on the switch handle.

The lighting panel shall be provided with a directory made of laminated plastic designating branch circuits in 1/4 in. high engraved letters.

The lighting panels in the new Sand Washer Houses shall be similar but of NEMA IV enclosure.

Sect. 30.11 TRANSFORMER. Where shown, the Contractor shall furnish and install transformers of the sizes indicated. Transformers shall be of the dry type, fungus proofed, and in weathertight enclosures.

In the new Regulator House, the transformers shall be rated 480 volt, 3 phase, 3 wire primary - 208/120 volt, 3 phase, 3 wire secondary with four 2-1/2 percent taps (two above and two below), equal to Sorgel type SO, and 208 volt single phase primary /32 volt secondary equal to Sorgel type S.

In the new Sand Washer Houses, the transformer shall be 480 volt single phase primary /120 volt secondary.

Sect. 30.12 CIRCUIT BREAKERS. Circuit breakers shall be ABI of the voltage and capacity as shown. Separately mounted circuit breakers shall be housed in NEMA IV enclosures and shall be ITE, Federal Pacific, or approved equal.

Sect. 30.13 CONCRETE PULL BOXES. The Contractor shall furnish and install concrete pull boxes where shown. All conduit entering concrete pull boxes shall be terminated with insulated bushings.

Sect. 30.14 LIGHTING FIXTURES. Lighting fixtures shall be installed at the locations shown and shall be of the following types:

Type A 2 - 40 watt R. S. recessed fluorescent fixtures consisting of an aluminum housing with reflector and a clear acrylic diffuser. Fixture shall have urethane foam gaskets and shall be dust and moisture resistant. All exposed parts and hardware shall be aluminum. Fixture shall be Miller #KA-1564A - 2 - 48" RS. all aluminum or equal.

- Type B Vaportight, bracket type, wall mounted, with cast aluminum Housing, guard, outlet box and clear glass screw globe, with corrosion resistant copper free alloy aluminum finish, and shall be equal to Russel & Stoll Co. Inc. No. 6254 A fixture.
- Type C Fixture shall be a weatherproof recessed type to be mounted in underside of canopies. Fixture shall be constructed of stainless steel and frame shall be satin finish with a straight sided square homogeneous opal glass bowl securely held. Fixture shall be Gruber #T-2231 - 10 SS or equal.
- Type D Pendant vaportight fixture, with cast aluminum hood, clear glass screw globe, cast aluminum guard, industrial RLM porcelain enameled steel dome reflector,  $\frac{1}{2}$  in. galvanized iron pipe stem, cast iron outlet box and cast watertight type aligner. Finish shall consist of a zinc chromate primer and a coating of corrosion resisting baked enamel. Fixture shall be for 150 watt lamp.
- Type E Same as Type D except close up ceiling mounted.
- Type F Housing of heavy duty cast aluminum, spring mounted porcelain mogul socket, and heat resistant silicon rubber lamp sealing gasket. Unit shall have full vertical and horizontal adjustment. Fixture shall be Circle D#101 or equal. Lamps to be PAR 300 type.
- Type G Floor type fixture consisting of an aluminum box with recessed aluminum cover, removable reflector, and a high stress clear diffuser. All interior parts shall be removable from the top. Lamp shall be 300 watt PAR plug-in type. Fixture shall be Gruber #T- 5671 or equal.

All lighting fixtures shall be furnished complete with lamps of wattage rating as noted, and shall be rated for 130 volts.

Lamps through 200 watt size shall be inside frosted; 300 watt and above to be clear. Fluorescent lamps to be 3,500 deg white of size as required by fixture type.

Ballasts for fluorescent fixtures shall be of the dual type, high power factor, ETL approved.

The mounting heights of all fixtures shall be as shown and as determined at the time of installation.

Fixtures shall be completely wired except where construction required direct connection to branch circuit wiring. Fixture wiring shall be 16 gage minimum, conductors shall be stranded and insulation and coverings shall be of the all asbestos heat resistant type.

Sect. 30.15 PAINTING. Equipment shall be protected during shipment and in the course of installation and wiring by waterproof wrappings suitable to protect surfaces from scratches, concrete drippings and paint drops.

Prior to final completion the steel work shall be cleaned and all scratches and abrasions shall be retouched.

Painting shall be as specified in General Specifications, Section S 7.

Sect. 30.16 PAYMENT. The lump sum price bid under Item 30 shall cover all costs of furnishing, installing, painting, testing, connecting, and placing in satisfactory operation electrical work, complete with appurtenances and accessories, as shown or required, including all work specified in Sect. 30.1.

Rock excavation is measured for payment under Item 2.



ITEMS 31a, 31b, AND 31cFILL AND GRADING

Sect. 31.1 WORK INCLUDED. Under Items 31a, 31b, and 31c, the Contractor shall furnish and place earth fill, sand fill, and gravel fill, and grade the site, including placing stored earth fill and replacing stored topsoil, as shown, specified, or ordered.

The subdivisions of Item 31 are:

- Item 31a - earth fill
- Item 31b - sand fill
- Item 31c - gravel fill.

Sect. 31.2 REQUIREMENTS. Earth fill, sand fill, and grading shall conform to the applicable provisions of General Specifications Section S 1.

Gravel fill shall consist of broken stone or gravel. Broken stone or gravel shall consist of hard, sharp, clean material. It shall be free from any considerable amount of flat, laminated, or elongated particles and shall be free from shells, clay, limestone, shale, or other deleterious matter. Broken stone or gravel shall be supplied graded in various sizes as follows:

<u>Sieve Size</u>	<u>Percentage Passing</u>
1-1/2 in.	100
1 in.	100-80
3/4 in.	95-70
3/8 in.	80-40
No. 4	70-25
No. 10	60-15
No. 40	40-10
No. 200	20-0

Sect. 31.3 MEASUREMENT. The quantity to be measured for payment under Item 31a shall be the number of cubic yards of earth fill placed, contained within the planes defined by: the existing original ground surface prior to doing any earthwork or construction and the finished ground elevations, as shown or ordered.

The quantity to be measured for payment under Item 31b shall be the number of cubic yards of sand fill placed over the filters, as shown or ordered.

The quantity to be measured for payment under Item 31c shall be the number of cubic yards of gravel fill placed, as shown or ordered.

Unsuitable and excess material disposed of in spoil areas, which is included for payment under earth excavation (Item 1), will not be measured for payment under Item 31a. Refilling of holes left by the removal of pipe, fittings, valves, manholes, septic tank, headwalls, concrete stairs, concrete walks, concrete encasements and stone monuments, and gravel for tile field, which is included for payment under outside pipe (Item 20), will not be

measured for payment under Item 31a. Constructing a temporary dike, which is included for payment under Item 23, will not be measured for payment under Item 31a. Gravel base course for roads and walks, which is included for payment under paving (Item 33), will not be measured for payment under Item 31c.

Sect. 31.4 PAYMENT. The price per cubic yard bid under Items 31a, 31b, and 31c, shall cover all costs of furnishing and placing earth fill, sand fill, and gravel fill, and grading the site, including the replacement of stored earth fill and stored topsoil, as shown, specified, or ordered.

SUBDIVISIONS OF ITEM 32TOPSOIL AND SEEDING

Sect. 32.1 WORK INCLUDED. Under the subdivisions of Item 32, the Contractor shall furnish and place new topsoil, ground limestone, fertilizer, seed, and sod, for seeded areas and planting strip, as shown, specified, or ordered.

The subdivisions of Item 32 are:

- Item 32a - new topsoil
- Item 32b - planting strip
- Item 32c - seeding
- Item 32d - sodding

Sect. 32.2 NEW TOPSOIL. Topsoil shall be spread to a depth of 4 in., after compaction, over areas to be seeded and 12 in. in planting strip. New topsoil shall consist of natural loam obtained from an area that has never been stripped, and shall be free from hard clods, stiff clay, partially disintegrated stone, lime, cement, ashes, sticks, roots, or any other undesirable material. Topsoil shall contain at least 6 percent organic matter with a pH range of 5 to 7.

The Contractor shall take special precautions for placing topsoil on top of the filters. The maximum gross weight of vehicles or any equipment shall not exceed 5 tons. All vehicles shall be equipped with pneumatic tires and rollers shall weigh not less than 500 lbs.

After topsoil has been placed, the areas shall be "dragged" and finish-graded as required to shape the ground to smooth draining grades to the elevations and contours shown or required. After ground shaping has been done, the surface shall be raked to true lines, free from all bumps, ridges, sticks, stones, debris, roots, grass clumps, or any other undesirable matter. The surface shall then be rolled with an approved type roller weighing not less than 500 lbs. The Contractor shall provide topsoil as required, at his own expense, to compensate for settlement and erosion.

Sect. 32.3 GROUND LIMESTONE. Ground limestone (calcium carbonate) shall conform to the following:

- 50 percent passing a No. 200 sieve,
- 90 percent passing a No. 100 sieve, and
- 100 percent passing a No. 10 sieve.

Total carbonates shall not be less than 80 percent or 44.8 percent calcium oxide equivalent.

Sect. 32.4 FERTILIZER. Commercial fertilizer 8-16-8 mixture shall contain the following percentages by weight:

- 8 percent nitrogen - consisting of 50 percent organic nitrogen, 25 percent nitrates, and 25 percent ammonia salts;
- 16 percent phosphoric acid - as super-phosphate, bone or tankage; and
- 8 percent potash - as sulfate of potash.

Sod shall be of good quality upland grass, free from noxious weeds and objectionable grasses. It shall contain a dense root system, shall be not less than 1-1/2 in. thick, and shall be cut with sharp tools, in strips of uniform width of not less than 12 in. Before removal from source, grass shall be cut to a 2 in. height and the surface shall be raked clean of all debris. Sod shall be kept moist until use, and shall be transplanted within 24 hours after being lifted or shall be stored in protected stacks until placed.

Sod shall be placed, after the topsoil has been prepared, by pressing pieces closely together. At the top of slope, the upper edge of sod shall be turned into the topsoil and covered by the topsoil. Sod shall be tamped in place and rolled, after which a thin layer of topsoil shall be spread over the entire sodded area, and raked to a smooth uniform surface. Sod shall be held in place by pegs driven flush with the top surface of the sod. Pegs shall be 1/2 in. by one in. by 8 in. long, and shall be spaced 24 in. on centers. The finished surface shall be smooth, at the elevations or contours shown or required.

During dry weather, the sodded areas shall be kept watered with sprinklers, as required to maintain growth.

The Contractor shall maintain all sodded areas at his own expense, until the expiration of the maintenance period. Any areas that fail to show a uniform stand of grass shall be resodded at the Contractor's expense, until an acceptable stand of grass exists. The Contractor shall properly water, mow, rake, weed, and otherwise maintain the grass at a maximum height of 2 in.

Sect. 32.8 PLANTING STRIP. The planting strip shall consist of a mixture of new topsoil, ground limestone, and fertilizer, placed to a depth of 12 in. Ground limestone and fertilizer shall be applied as specified in Sect. 32.6.

Sect. 32.9 MEASUREMENT. The quantity to be measured for payment under Item 32a shall be the number of square yards of new topsoil placed to a depth of 4 in., as shown or ordered.

The quantity to be measured for payment under Item 32b shall be the number of square yards of planting strip placed to a depth of 12 in., as shown or ordered.

The quantity to be measured for payment under Item 32c shall be the number of square yards of seeding placed, as shown or ordered.

The quantity to be measured for payment under Item 32d shall be the number of square yards of sodding placed, as shown or ordered.

Sect. 32.10 PAYMENT. The price per square yard bid under the subdivisions of Item 32 shall cover all costs of furnishing and placing new topsoil, planting strip, seeding, and sodding, as shown or ordered, including all work specified in Sect. 32.1.

ITEMS 33a AND 33bPAVING

Sect. 33.1 WORK INCLUDED. Under Items 33a and 33b, the Contractor shall construct paving for roads and walks, and mowing strips, as shown, specified, or ordered.

The subdivisions of Item 33 are:

Item 33a - paving for roads and walks

Item 33b - paving for mowing strips.

Sect. 33.2 REQUIREMENTS. Paving for roads and walks, shall consist of a 12 in. base course and 6 in. surface course, and shall have a total thickness of 18 in. after compaction. Materials and procedures shall conform to the requirements of Massachusetts Department of Public Works Standard Specifications for Highways and Bridges. The base course shall conform to Section B-1 gravel base course. The surface course shall conform to Section B-14, Class D Bituminous Macadam Surfacing, Type D-1.

Paving, for mowing strips shall consist of a 4 in. base course and 2 in. surface course, and shall have a total thickness of 6 in. after compaction. The base course shall be foundation material, as specified in General Specifications Sect. S 1.12. The surface course shall be as specified hereinbefore.

Where paving is to be constructed in filled areas, the Contractor shall not pave these areas sooner than 90 days after filled areas have been compacted.

Sect. 33.3 MEASUREMENT. The quantity to be measured for payment under Items 33a and 33b shall be the number of square yards of paving constructed, as shown or ordered.

Sect. 33.4 PAYMENT. The price per square yard bid under Items 33a and 33b shall cover all costs of constructing paving, as shown, specified, or ordered.

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Westfield  
December 4, 1964

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts


Gentlemen:

I have received a communication from the Chief Engineer of the Springfield Municipal Water Works informing me that the proposed intake structure for Contract #54 at the West Parish Filters has been eliminated from the construction project at this time.

I have written to Mr. Karalekas and suggested that if the project is not to proceed in the immediate future, a letter of request be sent to your Board asking that the Decree be discharged so that the docket on this case can be cleared.

A copy of my letter to Chief Engineer Karalekas is enclosed herewith for your information and files on this case.

Very truly yours,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

CD Westfield  
December 4, 1964

Springfield Municipal Water Works  
Office of the Chief Engineer  
City Hall  
Springfield, Massachusetts

Att: Peter C. Karalekas, Chief Engineer

Gentlemen:

Thank you for your letter of November 30, 1964, in which you informed me as Hampden County Hydraulic Engineer that the intake structure planned in the dike at the sedimentation basin at West Parish Filters has been eliminated from the Contract for the present.

If there is little possibility that this unit will be constructed in the near future it might be advisable to withdraw your filed plans and specifications and ask the County Commissioners that the Decree in this case be discharged.

If there is a possibility that the structure will be built within a year or two, then the Decree could stand as an active project. However, if a number of years may pass before the project is activated, it would be better to clear this item from the docket and reactivate it again whenever it is planned to proceed with the work.

If you decide to withdraw the project and have the Decree discharged, this will simply entail a communication to the Commissioners of Hampden County notifying them that the project will not proceed in the immediate future and that you wish the Decree to be discharged for the present.

Very truly yours,

---

George H. McDonnell  
County Hydraulic Engineer

GHM/mb

## Springfield Dam Inspections - 1957 - 1969



### 1957 Reports

#### Inspections by Tighe & Bond.

Abutters                      Springfield City Parks

City/Town                      Springfield

Dam                              Storms Drop Forge Company Dam

Dam                              Bassette Pond Dam

Dam                              Giamari Dam

Dam                              Anglers' Club Dam

Dam                              Union Narrow Fabric Company Dam

Dam                              Springfield Waste Company Dam

Dam                              Hogan Dams

Dam                              Moore Dam

Dam                              Monsanto Chemical Company Dams

Dam                              Sixteen Acres Pond Dam

Dam                              Forest Park Upper Dam

Dam                              Forest Park Middle dam

Dam                              Bay State Thread Company Dam

Dam                              Van Horn Park Dams

Dam                              Bay State Plumbing & Heating Supply Company Dam

Dam                              Old Stone Dam



Dam	Forest Park Lower Dam
Dam	Bassette Diversion Dam
Dam	Breckwood Park Dam
Dam	Watershops Pond Dam
Water	Porter Lake
Water	Poor Brook
Water	Water Shops Pond
Water	Sixteen Acres Pond
Water	Mill River
Water	Connecticut River
Water	Bircham Bend Ponds
Water	Abbey Brook

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
**BOWERS AND PEQUOT STREETS**  
**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

C.D. Springfield  
March 6, 1957

The Hon. The Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

All dams in the City of Springfield were inspected one or more times during the year 1956. The following is a report on the condition of the various dams as noted during the inspections.

A. Forest Park Lower Dam

This is a small dam located on the Porter Lake system in the Forest Park area of Springfield. The dam forms a small pond used for recreational and aesthetic purposes. In the flood of August, 1955, the dam suffered damage at both abutments due to the topping of the abutment area by the flood flow. The dam itself was a full spillway structure. This structure held during the flood. Following the flood the stream passed around the dam, particularly on the south side where the washout thru the soil of the abutment was about 25 ft. wide and 10 ft. more or less deep. This dam was reconstructed in 1956 and the construction was inspected from time to time. The new dam has been built in accordance with plans and specifications filed with the County. When last inspected, only a minor amount of cleanup work remained to be done at this dam.

B. Forest Park Middle Dam

This is an earth dam with a masonry spillway on the Porter Lake system in Forest Park, which forms a body of water used for aesthetic and recreational purposes. The earth embankment carries a park road. No damage occurred at this structure as a result of the August, 1955 flood. When last inspected, this dam was found to be in good condition.

C. Forest Park Upper Dam

This dam forms Porter Lake itself and is an earth embankment with a masonry spillway at about the central section. No damage occurred at this structure in the flood of August, 1955. In recent years it has been noted that the masonry of the spillway is becoming spalled and eroded as a result of weather and water action. This condition needs attention and the necessary maintenance work should be done in the near future to prevent further deterioration of the structure and the need for more expensive and difficult repairs at a later date.

D. Bay State Thread Co. Dam

This is the lower of a series of four dams located on Mill River in the built-up portion of Springfield. The dam is a masonry structure built for the purpose of supplying water and power to the adjacent industry. In the flood of August, 1955, no damage of consequence occurred at this dam. A catwalk over the dam was damaged by debris and flood water. When last inspected, this dam was found to be in satisfactory condition.

E. Springfield Waste Co. Dam

This is a masonry structure on Mill River upstream from the dam just described. It has a full spillway across the entire width of Mill River and the dam forms a pond to provide the adjacent industry with water for power purposes. In the flood of August, 1955, the abutment areas of the dam were topped, but no damage of consequence occurred to the structure itself. The concrete apron at the toe of the dam near the left side has been eroded considerably and should be repaired. The stone masonry at the left abutment is in need of maintenance and repair. This necessary maintenance should be considered for completion in 1957 and the owner of the dam should be advised of this matter.

F. Union Narrow Fabric Co. Dam

This is the third dam upstream on Mill River and the structure is of masonry construction with a spillway the entire width of the stream. The dam provides water to the adjacent industry for power and processing purposes. No damage was done to the dam itself in the flood of August, 1955. When last inspected, the dam was found to be in fairly good condition. Some spalling and eroding of the masonry was noted. This condition is not serious. At the time of the inspection no water was ponded behind the dam. The gate was open and the flow of the stream passed thru the structure.

G. U. S. Government Dam at Watershops Pond

This is a masonry structure owned by the U. S. Government and used in connection with the operation of the Springfield Armory. The structure was damaged during the flood of August, 1955, but since that time has been repaired under the direction of the Army Engineers. This dam is not inspected as a County dam by the undersigned.

H. Old Stone Dam at Sixteen Acres

This is an abandoned old stone masonry and earth dam located in the Sixteen Acres section of Springfield on a small stream that discharges into the Sixteen Acres Pond. The site of the dam is northerly of Wilbraham Road and easterly of Parker St. It is to the rear of the shopping center just developed and easterly of the new Sixteen Acres Public School. This dam has been breached for a number of years and no water had been ponded

at this site. When last inspected, the dam was in the same general condition and a free waterway existed thru the side breach.

I. Springfield Park Department Sixteen Acres Pond Dam

This is a stone masonry dam located in the Sixteen Acres section of Springfield at a point just westerly of Parker St. The dam forms a pond that is used for public recreational and general aesthetic purposes. No damage of consequence occurred at this dam as a result of the flood of August, 1955. Previous reports on this dam pointed out that tree growth at the left abutment was causing disturbance of the stone masonry. When last inspected, it was noted that the trees had been cut down and the condition of the masonry appeared satisfactory.

J. Springfield Park Dept. Breckwood Park Dam

This is an earth embankment with a masonry spillway that forms a pond just easterly of Bradley Rd. and northerly of Wilbraham Rd. that is used for recreational purposes. The earth embankment carries Bradley Road and the masonry spillway consists of a large culvert with a spillway crest under the road embankment. No damage occurred at this dam in the flood of August, 1955. When last inspected, the dam was found to be in satisfactory condition.

K. Anglers' Club Dam

This is a dam that was formerly used by the Anglers' Club to form a pond for fishing purposes. The location of the dam is on the north branch of Mill River at a point just upstream and easterly of Parker St. The dam has not been used for a number of years and the stoplog facilities used to impound the water are no longer in place. A free waterway exists for the passage of the flow of the brook. No damage occurred at this dam as a result of the flood of August, 1955.

L. Giamari Dam

This was a small dam located westerly of St. Michael's cemetery and southerly of State St. in the central portion of Springfield. It was an earth embankment having a shaft and tube spillway. This dam had not been used for many years and no water had been stored in the pond for some time. During the flood of August, 1955, the dam was washed thru at about the central section in the general area of the spillway tube. When last inspected, the dam was found to be in the same general condition and no pond was formed. The brook flowing thru the pond is negligible in size and the breach thru the structure will prevent the formation of any pond in time of storm. A housing development that has been under construction for a few years in the general area of the dam will undoubtedly result in the eventual complete abandonment of the structure. It is doubtful if this structure is large enough to be considered under the jurisdiction of the County.

M. Monsanto Chemical Co. Upper Dam

This is an earthen structure with a masonry channel spillway at the left end. The dam formerly belonged to Fitzgerald and forms a pond used in the past and at the present time for private recreational purposes. The dam is located just south of the B&A Railroad tracks leading to Indian Orchard and northwesterly of Berkshire Ave. In the flood of August, 1955, no damage of consequence occurred at this structure. When last inspected it was noted that brush was being cut down from the face of the earth embankment. This project should continue and all brush should be removed from the face of the embankment. Floating wood and debris in the pond and the spillway chute could partially plug the spillway chute and reduce its capacity. This debris should be removed from the pond and the spillway channel itself. On the downstream face of the embankment at the right end of the dam a sunken spot was noted and investigated. This area is directly over a pipeline passing thru the dam, and failure of the embankment is apparently directly related to the failure of this pipeline or the opening of pipeline joints. This pipeline should be excavated and the pipeline repaired. The earth embankment should be repaired by replacing the earth material and properly compacting this replaced material. This work is necessary for the safety of the dam and the owner should be required to carry on this work as soon as possible.

N. Monsanto Chemical Co. Lower Dam

This dam is an earth embankment with a masonry channel spillway that forms Bircham Bend ponds. The dam is located southerly of Worcester St. and downstream of the dam previously described. The pond formed by the dam has been in the past and is now used for private recreational purposes. During the flood of August, 1955, no damage of consequence occurred at this structure. When last inspected, it was noted that improvements were being made to the spillway channel and that new sidewalls were being constructed within the channel itself, thus narrowing the spillway. The work is not entirely completed and the repairs should continue until the spillway channel is made safe. Consideration should be given by the owner to the construction of a secondary spillway, probably of the swale type, to supplement the spillway capacity at the dam.

O. Bassette Diversion Dam

This was a masonry structure located on the north branch of Mill River for the purpose of diverting a portion of the flow of the north branch of Mill River into a small pond used for private recreational purposes. The dam site is at the southerly end of Shumway St. located southerly of Boston Road, State Highway Route 20. Prior to the flood of August, 1955, this dam was in a dilapidated condition and stored a negligible quantity of water. It was a very small dam, quite short in length and not more than 3 ft. in height. The flood of August, 1955, washed out this structure and for all practical purposes the dam can be con-

sidered no longer operative or capable of storing water even in time of high stream flow. When last inspected, the dam was in the same general condition.

Q. Bassette Pond Dam

This is a small earth embankment with a masonry channel spillway that formed the pond resulting from water diverted by the above-mentioned diversion dam. A small side brook also feeds water to this pond. With the loss of the diversion dam, the side brook is the only source of water supply to this pond. In the flood of August, 1955, a breach was washed thru the earth embankment of the dam. This breach has been repaired, but the repair work does not seem be of excellent quality and the embankment material placed in the breach seems quite sandy. The drainage area contributory to this pond is less than a square mile, the height of the dam is well under 10 ft., and the storage capacity would appear to be just under one million gallons. Consequently, unless this dam is raised to increase the storage capacity, it would seem that the structure would not come under the jurisdiction of the County. Inspections will be made annually to be certain that the dam is not raised or the diversion dam above-mentioned rebuilt without proper authority.

R. Moore Dam

This dam has been breached for many years. It is located just southerly of Worcester St. and downstream of the dams of the Monsanto Chemical Co. The existing breach provides a free waterway for the passage of the flow of the stream. The site of the dam is inspected annually to be certain that the breach remains open and no repairs to the structure are made without proper approval from the County. When last inspected, the dam was found to be in the same condition as has existed for many years.

S. Storms Drop Forge Co. Dam

This is a very small masonry dam located on a tributary of Poor Brook to the rear of the Storms Drop Forge Co. building and southerly of Page Blvd. This dam is only 7 ft. in height, has a negligible drainage area, and impounds much less than one million gallons of water. It has been inspected annually, although it actually does not come under county jurisdiction. Because of its location in Springfield, a record of the condition of the dam has been maintained. No damage occurred at this structure in the flood of August, 1955, When last inspected, it was noted that the concrete of the masonry dam itself is becoming quite dilapidated and spalled. If the pond is to be maintained by the Storms Drop Forge Co., they should give consideration to doing necessary maintenance and repair work to the dam. Although the County apparently has no jurisdiction in regard to this structure, it might be advisable to notify the company that it is the advice of the undersigned that repairs should be made to the dam.

T. Van Horn Park Upper Dam

This is an earth embankment located at Van Horn Park. The embankment carries a public street. The spillway at this dam consists of a pipeline fed from a catchbasin type of grate inlet. In the flood of August, 1955, no damage of consequence occurred at this dam. It is our understanding that the level of the pond raised dangerously close to the height of the roadway forming the dam. Because of the type of spillway provided at this upper dam and the possibility of its capacity being inadequate to carry off storm water flows, the owner should be directed to give consideration to the improvement of the spillway capacity. This matter has been pointed out in previous reports and it is now recommended that the owner take definite steps in order to improve the spillway at this dam.

U. Van Horn Park Lower Dam

This dam is located downstream of the structure just described and is not too far distant northeasterly of the Springfield Hospital. This dam prior to 1909 was a source of water supply for the City of Springfield. At that time, the pond when filled covered an area of about 16 acres and had a capacity of 100 million gallons more or less. For many years the water level in the pond behind the dam has been maintained considerably below the top of the dam and consequently the pondage at the present time is quite small. The dam is an earth embankment about 800 ft. long and nearly 40 ft. high. The top width is approximately 17 ft. Thru the embankment a 12" iron drainpipe and an overflow pipe extend from a stone masonry gate well located in the pond at the upstream toe of the dam. There is no surface overflow or spillway in connection with this structure. In the flood of August, 1955, no damage occurred at this pond. It is our understanding that a study is being made by the owner regarding this dam. Consideration should be given to providing an adequate spillway for this dam in addition to the spillway facility now available. Failure of the existing spillway tube or plugging of the spillway gate well might result in the impounding of a large volume of water that if released by failure of the dam could do considerable damage downstream in the densely built-up area of Springfield.

V. Hogan Lower Dam

This dam no longer exists and can now be dropped as an active dam from the records of the County. The dam formerly was an earth embankment with a small tube and swale spillway forming an ice pond on Abbey Brook easterly of Liberty St. in Springfield just southerly of the Chicopee City Line. The owner has not used this pond for many years and the development of the area for housing purposes has resulted in the abandonment of the dam and the filling in of the pond.

W. Hogan Upper Dam

This dam is located in the general area of the dam just described, a short distance upstream on Abbey Brook. Many years ago this dam was breached and a free waterway has existed for the passage of the flow of Abbey Brook. The development of this area for housing purposes appears to be encroaching upon the area of Hogan Upper Pond and it would seem likely that in the near future the remains of this dam and the pond area will be partially or totally abandoned and filled in.

There are twenty-two dams and dam sites within Springfield that are inspected annually. Of this number, seven are municipally owned. The dam at the Watershops Pond is in addition to the above twenty-two.

Only one active dam other than the Watershops Pond Dam was seriously damaged in the flood of 1955. This dam, the lower Forest Park Dam, has been rebuilt. With the exception of the damage at the Bassette Pond Dam, other structures damaged were either abandoned or dilapidated and of little use.

Very truly yours,

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George H. McDonnell  
County Hydraulic Engineer

GHM/f



WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, INC.**  
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**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

C.D. Springfield

Jan. 31, 1958

The Hon. the Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

Gentlemen:

All dams situated in the City of Springfield were inspected one or more times during the past year. The following is a report on the condition of the various dams within Springfield.

A. Forest Park Lower Dam

Conditions at this dam were found to be satisfactory. Some of the stones that form the aesthetic treatment of the spillway chute have been shifted and rolled into the spillway. This is not a serious matter. The stones may have been moved by children playing in the area. The stone work is backed up with concrete and is simply present for the aesthetic treatment.

B. Forest Park Middle Dam

This dam was found to be in good condition. Growth of vegetation taking place thru the masonry joints of the spillway, particularly under the capstones, at the right of the spillway crest should be removed and discouraged. Such growth could cause the stones to become loose and to separate.

C. Forest Park Upper Dam

This dam forms Porter Lake proper and the earth embankment as well as the masonry spillway are in satisfactory condition. Maintenance and repairs are needed at the masonry spillway. These repairs should be done in the near future in order to prevent more serious and expensive work being required at a later date. In recent years it has been noted that the masonry is becoming spalled and eroded. Unless corrective action is taken, this condition will become worse with the passing of time.

D. Bay State Thread Co. Dam

This is the lower of a series of four dams located on Mill River in the built up portion of Springfield. The dam is situated just upstream of the conduit carrying Mill River to the Connecticut River. When last inspected, this dam was found to be in satisfactory condition.

E. Springfield Waste Co. Dam

This is the second dam on Mill River upstream from the conduit. The structure is satisfactory. The concrete apron at the left of the dam was covered with overflowing water when last inspected and it could not be determined whether necessary maintenance and repairs had been completed. This structure will be reinspected at a later date.

F. Union Narrow Fabric Co. Dam

This is the third dam upstream on Mill River and the structure is composed of stone masonry on the right and concrete masonry on the left. The dam has not been used for the last few years. When last inspected, the gate was found to be open and the pond drawn down. The stone masonry portion of the dam is in very good condition. The concrete masonry part of the dam is spalled and eroded but enough mass remains to result in the dam being stable and safe. Conditions at this dam are satisfactory.

G. U. S. Government Dam at Watershops Pond

This dam does not come under County jurisdiction and was not inspected during the past year.

H. Old Stone Dam at Sixteen Acres

This dam is still breached and no water is ponded. The breach is wide enough to allow for the passage of flood flows.

I. Springfield Park Department Sixteen Acres Pond Dam

This dam is in very good condition. Recent maintenance and repairs have improved this dam considerably.

J. Springfield Park Dept. Breckwood Park Dam

This dam is in satisfactory condition. Earth fill has been washed out from behind the wings of the head wall. This earth fill should be replaced.

K. Anglers' Club Dam

This structure has been open for a number of years. Stop log facilities that formerly were used to impound water are no longer in place. The free waterway that exists is sufficiently wide to pass flood flows.

L. Giamari Dam

This dam was breached in the flood of August, 1955 and has never been repaired. It is doubtful that the structure will be repaired since housing development in the area is encroaching upon the dam and pond. The breach thru the dam is wide enough to care for surface runoff.

M. Monsanto Chemical Co. Upper Dam

This dam has been repaired during the past year. The earth section has been enlarged and improved. The brush has been removed from the face of the dam. A chain link type of fence has been constructed around the property adjoining the pond. In constructing this fence the dam has been included within the enclosure. In crossing the spillway, the fence has been extended down into the spillway to prevent persons from walking under the fence and into the enclosure. The placing of the fence into and across the spillway channel will result in blocking the channel by the collection of leaves, brush, and miscellaneous debris. Thus, the fence as now existing endangers the dam and should be removed from inside of the spillway. There should be no object blocking the flow of water at the spillway. The owner should alter the fence design if it is the desire to keep persons from entering the enclosure. This could be done in many ways, one of which would be to move the fence sufficiently far downstream of the dam so that the dam and spillway can function properly.

N. Monsanto Chemical Co. Lower Dam

This is the earth dam that forms Bircham Bend ponds. The dam is in good condition. Repairs that were being carried on a year ago within the spillway channel have been completed and the spillway is now in excellent condition. Consideration should be given by the owner however, to the construction of a secondary spillway, probably of the swale type, to supplement the spillway capacity at your dam.

O. Bassette Diversion Dam

This dam was washed out in the flood of August, 1955 and has never been replaced. It was a small structure and ponded little water.

P. Bassette Pond Dam

This dam is in the same general condition as reported previously. The structure is in poor condition but it is not dangerous to persons and property downstream. The structure is not large enough to come under County jurisdiction and is only inspected annually to be certain that it is not enlarged.

Q. Moore Dam

This structure has been breached for many years. No pond has been formed and a free waterway of sufficient size exists for the passage of flood flows. When last inspected the dam was in the same general condition.

R. Storms Drop Forge Co. Dam

This dam is becoming rather dilapidated and the concrete is becoming disintegrated. The section of the dam directly under the spillway notch should be repaired. Failure of the dam would not cause damage to persons and property downstream because the structure is so small and impounds so little water. The only danger to any person would occur by the masonry wall of the dam actually falling over onto a person standing below the dam. Such a rapid failure is not anticipated. If the pond is to be maintained the owner should give consideration to doing the necessary maintenance and repair work now before the cost of such work becomes greater due to further disintegration. These repairs can only be recommended since the structure is not large enough to come under County jurisdiction and the drainage area involved is less than a square mile.

S. Van Horn Park Upper Dam

This is an earth embankment in Van Horn Park that carries the public street. The spillway at the dam situated on the northerly end has a catch basin type of grate inlet. This type of inlet is good from the viewpoint of preventing entry of debris into the pipeline. However, the opening is so restricted that water ponds above the opening whenever heavy flows occur or debris partially blocks the grate. Consideration should be given to improving the spillway capacity and it is advisable that definite steps be taken at once on this matter.

T. Van Horn Park Lower Dam


This dam is located downstream of the structure just described and is not too far distant northeasterly of the Springfield Hospital. This dam prior to 1909 was a source of water supply for the City of Springfield. At that time, the pond when filled covered an area of about 16 acres and had a capacity of 100 million gallons more or less. For many years the water

level in the pond behind the dam has been maintained considerably below the top of the dam and consequently the pondage at the present time is quite small. The dam is an earth embankment about 800 ft. long and nearly 40 ft. high. The top width is approximately 17 ft. Thru the embankment a 12" iron drainpipe and an overflow pipe extend from a stone masonry gate well located in the pond at the upstream toe of the dam. There is no surface overflow or spillway in connection with this structure. In the flood of August, 1955, no damage occurred at this pond. It is my understanding that the Park Department was to have a study made regarding this dam. I am not aware of the results of any study that may have been made. In any event consideration should be given to providing an adequate spillway for this dam in addition to existing spillway facilities. Failure of the present dam at a time when it is impounding a large volume of water could result in a vast amount of damage occurring downstream in the densely built up area of Springfield.

U. Hogan's Dams

For all practical purposes these dams have been abandoned and have not been inspected. The development of the general area for housing purposes eliminates these dams and their related ponds.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. MC DONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON  
TEL. JEFFERSON 3-3991

**TIGHE & BOND**  
**CONSULTING ENGINEERS**  
BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS

CIVIL, SANITARY AND  
ELECTRICAL ENGINEERING  
SUPERVISION OF CONSTRUCTION  
AND OPERATION  
INVESTIGATIONS, REPORTS,  
PLANS AND SPECIFICATIONS

CD Springfield

Dec. 1, 1958

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

All dams situated in the City of Springfield have been inspected one or more times during the past year. The following is a report on the condition of the various dams within Springfield.

A. Forest Park Lower Dam

This dam is in satisfactory condition. Water emerging thru the stones at the left abutment area is the result of a discharge pipe behind the stones creating the aesthetic purpose of a spring. The left abutment area of natural earth is protected from wash by a concrete wall buried under the stones.

B. Forest Park Middle Dam

Vegetation growing from underneath the capstones of the spillway, particularly on the north side, should be removed and killed. This growth is causing movement of the capstones. This condition has been reported previously and no action has been taken to correct this condition. Failure to correct the condition can result in more expensive repairs at a later date. Protective maintenance should be done now.

C. Forest Park Upper Dam

The embankment of this dam is satisfactory. The spillway is still in need of maintenance and repair to the masonry that is spalling and eroding. The condition appears to be getting worse and corrective action should be taken. Vegetation growing from the stone masonry should be killed. This condition has been reported before and to date, no steps have been taken to do any corrective maintenance.

D. Bay State Thread Co. Dam (Now Bay State Plumbing & Heating Supply Co.)

The drawdown gate is not functioning properly. The stem is in the wide open position but no water flows thru the conduit in the dam. This condition should be investigated and if the gate is plugged, the debris plugging the opening should be removed. If the gate is broken, it should be repaired. In all probability, the gate stem or gate itself has been broken. The left abutment area has been washed to some extent behind the abutment wall, and this condition should be repaired. The access walk on top of the dam leading to the gate structure should be replaced. This walk has been washed away.

E. Springfield Waste Co. Dam

The stone masonry at the left abutment should be checked for undermining and movement. Any needed repairs and maintenance should be done as soon as possible to prevent failure of the stones that are undermined. The masonry work needed at the left toe of the dam should be done this coming year. This condition has been reported previously.

F. Union Narrow Fabric Co. Dam

The dam is in satisfactory condition, the pond is full and a good flow is passing over the spillway. The abutment areas appear to be in good condition.

G. U. S. Government Dam at Watershops Pond

This does not come under County jurisdiction and was not inspected during the past year.

H. Old Stone Dam at Sixteen Acres

This dam has been breached and has been inactive for a number of years. The area that was once the pond has been filled in to a great extent and a portion is now part of the local public school play yard. The dam will never again be activated and consequently, further inspection will be unnecessary.

I. Springfield Park Dept. Sixteen Acres Pond Dam

This dam was found to be in good condition.

J. Springfield Park Dept. Breckwood Park Dam

This dam was found to be in satisfactory condition. The needed fill at the wingwalls reported last year has been taken care of.

12/1/58

K. Anglers' Club Dam

This dam is still inactive and no stoplogs are in place. A free waterway exists for the passage of all storm flows. The dam has not had logs in place in the spillway section for years. The stoplog structure has been nearly all destroyed as the result of lack of use, maintenance, and as a result of time and flood conditions.

L. Giamari Dam

This dam is completely gone as a result of a housing development being constructed in the general area, and it is expected that the dam will never be replaced. Consequently, it does not appear necessary to inspect this site in the future.

M. Monsanto Chemical Co. Upper Dam

The woven wire fence reported last year is still in place across the spillway. This condition should be corrected as soon as possible to protect the dam. Leaves and debris now against the fish screen that is still in place and against the fence itself cause water to stand about 12" above the crest of the spillway. The owner of this dam and fence should again be notified of the dangerous conditions resulting from the fence as it now exists and the owner should be directed to remove the fence from the spillway.

N. Monsanto Chemical Co. Lower Dam

The spillway at this dam is satisfactory. It would be well to construct an auxiliary spillway as previously recommended to care for extreme flood flows. The brush and trees now growing on the earth embankment of the dam should be cut down and removed.

O. Basette Diversion Dam

This dam is completely gone. It was damaged considerably in the flood and prior to the flood of 1955. The dam has been completely removed and the stream dredged and straightened. There is a house now being constructed above the stream and it would appear as if there will be no further damming of the stream and that the free waterway now existing will remain.

P. Basette Pond Dam

The stream is no longer diverted to form the pond. The entrance to the pond has been completely plugged with an earth dike. The spillway from the pond has been tightly sealed with boards. The pond apparently is now nothing more than a ground water fed body of water and thus does not come under County jurisdiction. The pond will be inspected for the next year or so to be certain that no changes are made to revert to conditions that existed in bygone days and to be certain that the size of the pond and its general



conditions are not changed.

Q. Storms Drop Forge Co. Dam

This dam is still in the same general dilapidated condition previously reported. The spillway tube shaft is partly blocked with debris. Though this dam does not come under County jurisdiction, it would be well to again notify the owner of the advisability of either repairing the dam or abandoning it.

R. Van Horn Park Upper Dam

This dam was found to be in satisfactory condition. The spillway inlet was free of leaves and debris. As recommended many times previously, a better spillway arrangement should be provided or an auxiliary spillway constructed to work in conjunction with the existing spillway tube and inlet.

S. Van Horn Park Lower Dam

The same general condition still exists as reported previously. Consideration should be given to providing an adequate spillway for this dam in addition to the existing spillway facilities. Failure of the present dam at a time when it is impounding a large volume of water could result in a vast amount of damage occurring downstream in the densely built-up area of Springfield.

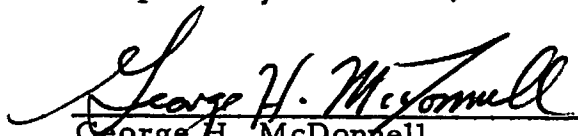
Construction work is going on downstream of the toe of the dam. It appears as if a drainage project is being built. Construction equipment has been on top of the dam and on the downstream slope of the dam. Damage has been done to the face of the dam embankment as a result of the crawler treads of this equipment running on the top and face of the dam.

If the construction work now going on is related to the dam, plans and specifications should be filed for review and approval. To date, the undersigned knows of no plans or specifications that have been submitted for any work that might be done to improve the dam or its facilities.

T. Hogan's Dams

These dams are abandoned and gone. A housing development occupies most of the site at each of the old ponds and as a result, no further inspections of these dams will be needed in the future.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Springfield

Dec. 31, 1959

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

All dams located within the City of Springfield have been inspected one or more times during the past year. The following is a report on the condition of the various dams situated within Springfield, as noted during various inspections in 1959.

A. Forest Park Lower Dam

This dam was found to be in satisfactory condition. The spillway, as well as the abutments, were carefully checked and found to be OK.

B. Forest Park Middle Dam

Growth of vegetation is still taking place thru the face of the stone masonry at the spillway. This growth is at the right top of the spillway masonry. The growth of this vegetation has been noted for a number of years and has been reported annually. Removal of the vegetation has been recommended a number of times in the recent past. The work of removing the vegetation will probably only consume one or two man hours of time. A small investment in maintenance now can do much to prevent the need for expensive repairs at a later date. It is recommended that the officials of the Park Department be notified that the vegetation still exists and that it should be removed for the good of the stone masonry at this dam. The earth embankment forming the main part of this dam was found to be in satisfactory condition.

C. Forest Park Upper Dam

The masonry spillway at this structure is in need of maintenance and repairs. Weathering and water wear on the stones

at the face of the spillway **is** growing worse. Capstones at the right end of the spillway crest will fall from the dam in the near future, unless maintenance is done at this structure.

The embankment section of this dam was found to be in satisfactory condition.

D. Bay State Thread Co. Dam. (Now Bay State Plumbing & Heating Supply Co.)

The drawdown gate at this dam apparently still is not functioning properly. The position of the stem shows that the gate should be wide open but no water was found flowing thru the dam in the drawdown opening. This condition has been reported in the past and it should be investigated and corrective action taken. If the gate is plugged, the debris plugging the opening should be removed. If the gate is broken or disconnected from the gate stem, proper repairs should be made.

The left abutment area still remains washed to the south of the abutment masonry. This condition should be repaired.

The access walk on the top of the dam leading to the gate-operating structure should be replaced. Much debris was noted ponded at the dam in the vicinity of the draw-down facility.

E. Springfield Waste Co. Dam

The masonry at the left abutment has been repaired. The toe of the dam seems to be in satisfactory condition. When last inspected, the pond was found to be full and a good stream of water was passing over the spillway. The dam seemed to be satisfactory in every respect.

F. Union Narrow Fabric Co. Dam

The drawdown gate of this dam was open when the structure was last inspected and very little water was ponded. The masonry of the dam looked to be in good condition. Both abutment areas were found to be satisfactory also. Much debris was noted in the pond and against the masonry dam.

G. U. S. Government Dam at Watershops Pond

This structure does not come under County jurisdiction and was not inspected during the past year.

H. Springfield Park Dept. Dam, Sixteen Acres Pond Dam

This dam was found to be in satisfactory condition. It was noted that a tree cut from the left abutment, for the purpose of protecting the stone masonry may still give trouble in that the stump is sprouting many shoots. There is an existing tree at the right abutment that may give trouble in the near future. The root systems of both of these trees will be observed from time to time in the future and recommendations made regarding the killing of the root systems, as needed.

I. Springfield Park Dept. Breckwood Park Dam

This dam was found to be satisfactory. The embankment was in good condition. The spillway was found to be in good condition also.

J. Anglers' Club Dam

This dam is still inactive and no stoplogs were noted in place at the dam structure. The pond area back of the dam is becoming heavily overgrown with brush and grass. A wide free waterway exists at the site of the dam for the passage of storm flows.

K. Monsanto Chemical Co. Upper Dam

The embankment of this dam was found to be in satisfactory condition. The spillway itself was in good condition except that the chain link fence previously reported is still in the spillway and results in a dangerous condition, should the fence become blocked with debris in time of flood flow. The chain link fence should be removed from the spillway channel, and no obstruction of any sort should be allowed in this structure.

At the time of the last inspection, the pond was found to be empty. The drawdown facility was open and the flow of the brook passed thru the dam.

L. Monsanto Chemical Co. Lower Dam

The embankment of this dam was found to be in satisfactory condition. The dam will undoubtedly require brushing in 1960. The masonry spillway chute was found to be in very good condition.

M. Bassette Diversion Dam

Conditions at the site of this structure were found to be

# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

-4-

CD Springfield  
Dec. 31, 1959

the same as a year ago. The stream itself has been straightened and cleared. There is absolutely no visible sign of the old diversion dam left in the stream. There apparently will be no further need for an inspection of this dam in the future.

### **N. Bassette Pond Dam**

With the abandonment of the diversion dam, the stream is no longer diverted to form the pond behind this dam. The spillway from the pond has been tightly sealed with boards. The pond apparently now is nothing more than a ground water fed body of water and only collects surface runoff from a very small drainage area. As the pond and dam now exist, the structure does not come under County jurisdiction. It was noted at the time of the last inspection that major sewer construction is taking place in the area of the pond. This construction is undoubtedly a part of the Dept. of Streets and Engineering sewer extension program. The main sewer has been constructed to the north and west of the pond. This structure will be inspected again in 1960. If no change has occurred and there is no evidence of a change anticipated in the future, then the structure, as existing, will not require future annual inspections.

### **O. Storms Drop Forge Co. Dam**

This dam is in the same general dilapidated condition as reported in previous years. The spillway tube shaft is partly blocked with debris. The masonry of the overflow is dilapidated and eroded. The owners of this structure have been advised of the condition in the past but no repairs have been made to the dam. The structure does not come under County jurisdiction and consequently no directive in connection with recommended repairs can be made. This structure is checked from time to time to be certain that its size is not changed to a point where it would come under County control.

### **P. Van Horn Upper Dam.**

This dam was found to be in satisfactory condition. The work of reconstruction has been fairly well completed. The new spillway is in operation and the danger of this dam being topped in time of extreme storm is now eliminated. All final clean-up work at this structure will probably be completed during the coming year.

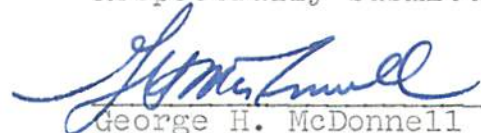
**TIGHE  
& BOND** CONSULTING ENGINEERS

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CD Springfield  
Dec. 31, 1959

Q. Van Horn Park Lower Dam

The work of constructing a new outlet at this dam has been completed. The intake shaft has been erected and the tube thru the embankment set in place. There remains only a minor amount of work to be accomplished in 1960 to complete all work at the structure. As now existing, this dam is in good condition and its safety factor has been greatly increased.

Respectfully submitted



George H. McDonnell  
County Hydraulic Engineer

GHM/cmb





GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

*January 26, 1961*

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Springfield  
Jan. 18, 1961

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

The dams situated within the City of Springfield have been inspected one or more times during the year 1960. The following is a report on the condition of the various dams within Springfield, as noted in the annual inspections and at the time of special inspections.

A. Forest Park Lower Dam

The spillway at this small dam is in the same condition as reported previously. It is in good shape and is well maintained. The abutment areas are in satisfactory condition and the large stone blocks placed in the abutment areas for aesthetic purposes are satisfactory.

B. Forest Park Middle Dam

The vegetation growing from the spillway masonry has been cut and removed. Conditions have improved and the danger from the growing vegetation has been temporarily eliminated. The masonry at this dam will need repairs and pointing in a few years.

C. Forest Park Upper Dam

Capstones at the right of the spillway masonry crest may fall as the result of weathering and water wear of supporting masonry. The masonry face of the spillway at both abutment areas will need attention soon to prevent further weathering and water erosion action and to provide proper support for the capstones.

The earth embankment of the dam is satisfactory.

D. Bay State Plumbing & Heating Supply Co. Dam

This dam is in the same general condition as reported last year. The gate spindle or the gate itself is broken. The gate stem is in a raised position and thus, the gate should be wide open. However, no water flows thru the gate outlet and thus, it is assumed that the stem has broken or become disconnected from the gate. A large amount of debris was noted in the water at the crest of the dam at the time of the last inspection on December 2, 1960. The dam itself does not endanger persons and property downstream. The structure is relatively strong and the masonry is in good condition. Earth has been eroded from behind the left abutment. However, the natural rock ledge will prevent further wear in this area. Though the dam is in need of repairs, the repairs do not have any major effect on the safety of the structure and therefore, it does not seem necessary to direct that work be done at this time.

E. Springfield Waste Co. Dam

The dam was in good condition when last inspected. Both abutment areas are satisfactory. The pond behind the dam was full and a good stream of water passed over the masonry spillway section.

F. Union Narrow Fabric Co. Dam

This dam was satisfactory when last inspected. The left abutment area was in good condition. The pond was full of water and the flow of the stream passed over the dam spillway. The wheel pit and power facility at the right abutment area are fairly well torn out and it would appear as if this facility is being abandoned or will be rebuilt. Even with the removal of the wheel pit and related facilities, the abutment area is satisfactory and the dam structurally OK.

G. U. S. Government Dam at Watershops Pond

This structure does not come under County jurisdiction and was not inspected during the past year.

H. Springfield Park Dept. Dam, Sixteen Acres Pond Dam

This structure was satisfactory when last inspected. Tree growth will be watched in near future years for the possibility of root damage to masonry of the structure.



I. Springfield Park Dept. Breckwood Park Dam

This dam was found to be in satisfactory condition when last inspected. The embankment was OK. The masonry of the spillway was in satisfactory condition.

J. Anglers' Club Dam

This dam is still inactive and no stop logs were noted in place at the dam structure. This dam was been inactive for many years but the site is still inspected to be certain that stop logs are not placed in the support and water ponded.

K. Monsanto Chemical Co. Upper Dam

The embankment of this dam was in satisfactory condition at the time it was last inspected. Certain recommended changes to the spillway were to be made regarding the protective fence that surrounds the area. This matter was discussed with a representative of the company and the dam will be rechecked for correction of this condition.

L. Monsanto Chemical Co. Lower Dam

When last inspected, the embankment of the structure was in good condition. The spillway masonry was satisfactory.

M. Storms Drop Forge Co. Dam

This small dam is in the same general condition as noted in previous years. It is dilapidated and in need of repairs. However, the dam is small and the amount of water stored is such that the structure does not come under County jurisdiction. The dam is checked from time to time to make sure that it is not enlarged to a point where it would come under County control.

N. Van Horn Park Upper Dam

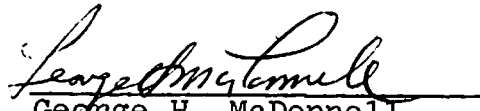
The new spillway is operating satisfactorily at this dam. The masonry is in relatively good condition and the embankment is OK. The spillway chute shows some signs of settlement at a construction joint near the lower end of the structure. This condition was noted during construction and was pointed out and discussed with Contractor and Engineer personnel at that time. The joint has been patched in the recent past to take care of settlement action that

has occurred. This construction joint will be checked in the future to determine if further motion is taking place. At the inlet end of the spillway, some damage has occurred to the concrete of the roof when holes were drilled to provide facilities for bracing a pipeline passing thru the spillway. Some of the reinforcing steel was found exposed and this condition should be corrected by protection of the reinforcing steel. This condition will be checked at the time of the next inspection and if protective work has not been done, recommendations will be passed on in accordance therewith.

0. Van Horn Park Lower Dam

The spillway tube and the shaft were found to be satisfactory. The surface of the dam embankment is quite worn and in poor condition at various locations. In the general area of the excavation made at the time the spillway tube was installed, the surface of the embankment has been damaged by a slight slide of the earth. The surface of the dam embankment should be corrected and stabilized as needed to prevent further erosion and wear. Correction of the condition at the surface of the embankment, particularly on the downstream side, can prevent the need for more expensive maintenance at a later date.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

*CONSULTING ENGINEERS*

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Springfield  
Dec. 12, 1961

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

The dams located within Springfield have been inspected at least once during the year 1961. The following is a report on the general condition of each dam in Springfield.

A. Forest Park Lower Dam

The spillway, the abutments and the rustic stone block walls along the side of the structure were all found to be in satisfactory condition.

B. Forest Park Middle Dam

The masonry spillway is in need of pointing and repairs to the stone work. The spillway conduit under the roadway, forming the embankment of the dam, is in need of masonry repairs. These repairs should not be delayed too long, since a continuation of the masonry deterioration, both at the spillway and in the conduit thru the embankment, could cause the need for expensive repairs at a later date.

C. Forest Park Upper Dam

Repairs to the spillway of this dam should be done as soon as possible. Failure to make repairs and the continuation of the deterioration of the masonry of the overflow will result in loss of the capstones on the spillway and the possibility of major damage occurring to the dam. The need for repairs at this structure has been pointed out in the past and

as yet, no work of a permanent nature has been done. Repairs are also needed to the masonry conduit carrying the discharge from the spillway under and thru the embankment. Erosion and wear of the masonry has grown to a point where repairs are a necessity. The embankment at this dam is in satisfactory condition.

D. Bay State Plumbing & Heating Supply Co. Dam

This dam is in the same general condition as reported a year ago. the gate spindle remains broken and detached from the gate itself and the gate is thus in a broken closed position. The volume of the pond has been nearly filled in with silt and miscellaneous debris washed down by Mill River. Only a small fraction of the old storage capacity now remains. The masonry dam itself is satisfactory and the left abutment, though washed by flood waters of the past, is in natural rock ledge and further washing by flood waters will be quite limited. Though the dam is still in need of repairs, the repairs do not have any major effect on the safety of the structure as it now exists and therefore, it does not seem necessary for your Board to order the Owner to do repair work at this time.

E. Springfield Waste Co. Dam

This dam was noted to be in relatively good condition at the time of the last inspection. Both abutment areas were found to be satisfactory and the spillway portion of the dam was in suitable condition. At the time of the last inspection, water was passing over the crest of the spillway.

F. Union Narrow Fabric Co. Dam

This dam was found to be in satisfactory condition. The old wheel pit at the right abutment area has been fairly well ripped out and the equipment removed. The abutment area appears to be perfectly safe, even though the structure making up the wheel installation has been dismantled. The stone masonry section of the dam is in relatively good condition. Though the concrete masonry section is spalled and eroded somewhat, the dam still contains a satisfactory section and, in the opinion of the undersigned, is safe. The left abutment area is in suitable condition.

G. U. S. Government Dam at Watershops Pond

This structure does not come under County jurisdiction and was not inspected during the year.

H. Springfield Park Dept. Dam, Sixteen Acres Pond

The stone masonry at the spillway of this dam is in need of pointing, jointing and some repair work. The large tree at the right abutment should be removed. The uprooting of this tree in a high velocity wind storm could cause the formation of a relatively large cavity at the right abutment and thus might result in a washout around the spillway of the dam. At the time of the last inspection, the drawdown gate was part way open and the level of the pond was about a foot below spillway crest.

I. Springfield Park Dept. Dam, Breckwood Park

The embankment and the spillway at this structure were found to be in satisfactory condition. The conduit under the embankment carrying the road was also noted to be satisfactory.

J. Anglers' Club Dam

This dam, inactive for a number of years, has been purposely breached thru the center of the spillway section, the left of the spillway section and at the left embankment and abutment area, to allow for the construction of an intercepting sewer by the City of Springfield. The waterway now existing for the passage of brook flow is wide and deep. It would appear as if water will no longer be impounded at this old dam site. Conditions as now existing are satisfactory. The site will be checked annually for a few years, to be certain that the free waterway as now existing becomes a permanent waterway thru the old dam.

K. Monsanto Chemical Co. Upper Dam

At the time of the last inspection, the pond was found to be empty and the drain structure open to its bottom elevation. The embankment was found to be in satisfactory condition and the spillway was in good state of repair. The woven wire fence crossing the spillway and, which at one time extended down into the spillway chute interfering with the flow of water, has been redesigned with a hinged section, so that the fence no longer will block the flow of discharged water. Conditions in general at this dam were found to be good.

L. Monsanto Chemical Co. Lower Dam

The pond was found to be empty at the time of the last inspection.

The drain culvert thru the embankment of the dam has apparently been extended into the pond by the use of a tube. The tube has an open end into which the flow of the brook is directed. Thus, the structure as existing is an earth embankment with a culvert thru the embankment. The entrance to the drain structure was partly closed and plugged with miscellaneous debris. As existing, the culvert opening can become completely plugged and thus the dam reactivated to cause water to be ponded to spillway level.

If the dam is to be abandoned, the embankment should be breached with a wide channel suitable to pass flood flows and large enough in cross section so that it cannot become plugged with debris.

The earth embankment and the spillway chute itself were found to be in satisfactory condition.

M. Storms Drop Forge Co. Dam

This small dam was in the same general dilapidated condition as reported in previous years. The concrete wall is fairly well disintegrated and the volume of the pond has been nearly filled to spillway level with sands washed in from adjacent areas. The structure, as existing, does not come under County jurisdiction and there would appear to be little chance that the dam will ever be enlarged and made 10 ft. high or higher. Since the dam is now nothing more than a masonry retaining wall in the small valley of the brook, and since it is highly improbable that the structure will ever be enlarged, routine inspections of this dam seem unnecessary in the future.

N. Van Horn Park Upper Dam

The embankment of this dam was found to be in satisfactory condition. The lower section of the spillway chute shows very little evidence of any further settlement. It is possible that water may work its way under the floor, near the joint at the upper end of this lower masonry section. Should this occur, further settlement of the chute may take place. The condition will be closely observed during future inspections to see if repairs are ever needed.

The sidewalk slabs, running longitudinally along the top of the dam, at the downstream side of the dam, have been undermined. It would appear as if undermining may have been done by someone digging under the slabs. Further undermining could result in a collapse of the sidewalk slabs and possible injury to a pedestrian using the

sidewalk. Though this condition has no bearing on the safety of the dam, it probably should be called to the attention of City officials so that the sidewalk can be properly repaired.

Exposed reinforcing rods in the underside of the roof at the inlet end of the conduit, reported a year ago, should be protected from the atmosphere by the use of either paint or by cement grouting.

O. Van Horn Park Lower Dam

At the time of the last inspection, the pond level was noted to be a few inches below the overflow port invert in the shaft intake. An inspection at the bottom of the shaft indicated that the drawdown gate is leaking slightly and the quantity of leakage apparently is enough to keep the pond drawn down the few inches below the overflow port invert.

The bottom of the spillway shaft is full of miscellaneous debris, boards and a fairly long section of a telegraph pole. Debris was also noted in the outlet chamber at the downstream toe of the dam. This debris consists of old metal drums, wood, timbers, iron, etc. This debris could be washed into the drain and cause damage thru a partial plugging of the drain and a reduction in its carrying capacity. The protective woven wire fence around the outlet structure has had one section of the access gate removed and placed into the masonry outlet chamber. Access to the chamber can be gained readily thru the opening in the fence and then by using the gate section as a ladder to climb down into the masonry structure. Access to the tube and conduit thru the dam embankment can then be had from the outlet chamber.

The surface of the embankment at this dam is in need of erosion control and the promotion of a good sod growth. Unless work of this nature is done in the coming year, it can be expected that erosion problems will become worse with the passing of time.

Respectfully submitted

GHM/cmb

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George H. McDonnell  
County Hydraulic Engineer



GEORGE H. McDONNELL  
PHILIP W. SWERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Springfield  
Jan. 22, 1963

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

All dams situated within the City of Springfield have been inspected at least once during the year 1962. The following is a report on the general condition of each dam in the City of Springfield.

A. Forest Park Lower Dam

This dam was found to be in satisfactory condition. The abutment areas were OK and the spillway was in good shape.

B. Forest Park Middle Dam

The stone masonry of the spillway is in need of repair. Concrete division walls in the conduit carrying the water from the spillway under the roadway embankment are in need of repair. The concrete is eroded away to a point where the reinforcing steel is dangerously exposed. This condition has been reported previously to the Springfield Park Commission. It should be reported again and the potential seriousness of the existing conditions brought to the attention of the Park Commission once more.

C. Forest Park Upper Dam

Capstones at the right end of the spillway have fallen off as predicted in the report of a year ago. More damage will be done to the spillway of this dam unless needed maintenance is done in the immediate future. For some time the fact that this dam is deteriorating has been pointed out to the officials of the Park Department. Nothing has been done as yet in the way of maintenance to prevent further deterioration. Unless maintenance is done now,



more serious and costly repairs will be required in the near future and it is possible that more sections of the stone masonry of the dam will fail. The embankment of the dam is satisfactory. The spillway tube passing thru the embankment under the road should be checked thoroughly and repaired as needed.

D. Bay State Plumbing & Heating Supply Co. Dam

The dam is in the same general condition as previously reported. The volume of the pond has been greatly filled in with silt and miscellaneous debris washed down by the water of Mill River. Only a small fraction of the old storage capacity now remains. The masonry dam is in satisfactory condition. Abutment areas are OK.

E. Springfield Waste Co. Dam

This dam was found to be in relatively good condition when last inspected. The abutment areas were satisfactory and the spillway portion of the dam was good. At the time of the last inspection water was passing over the crest of the spillway.

F. Union Narrow Fabric Co. Dam

This dam is in the same general condition as previously reported. Water was passing over the crest of the structure at the time of the inspection. As mentioned in the report of last year, the old wheel pit at the right abutment has been ripped out and equipment removed. The abutment area appears to be perfectly safe even though the structure making up the wheel installation has been dismantled. When last inspected the dam was deemed to be safe.

G. U. S. Government Dam at Watershops Pond

This structure does not come under County jurisdiction and was not inspected during the year.

H. Springfield Park Dept. Dam, Sixteen Acres Pond

The large tree located at the right abutment just beyond the end of the spillway crest should be cut down. If this tree becomes up-rooted in a high wind storm, or for any cause whatsoever, damage could occur to the right abutment stone masonry. Some of the stone masonry has been dislodged by root action. Repairs should be made to the dislodged blocks of masonry. At the time of the last inspection water was passing over the spillway.

I. Springfield Park Dept. Dam, Breckwood Park

This dam was found to be in very good condition. The embankment was satisfactory and the spillway was clear of any debris.

J. Anglers' Club Dam

No dam now exists at the site of this old structure. When checked five or six times throughout the year, it was found that the channel was free and clear of any obstruction and that water in the brook flowed thru the location of the old dam. It is doubtful if a dam will ever be active at this site again. It will be checked once or twice more in 1963 to be certain that nothing is done to reactivate a dam at this site.

K. Monsanto Chemical Co. Upper Dam

The embankment at this dam was found to be in good condition. The spillway was satisfactory. It was noted that an excavation has been made in the embankment on the downstream one-third, at the location of the drain-pipe and that a manhole is being constructed on the drain-pipe. The Owner should be notified that no control facilities, such as a gate of any type should be constructed in connection with this manhole. No plans have been filed regarding alterations or repairs nor has there been any conference with the undersigned in connection therewith. In general, conditions at the dam were found to be satisfactory. At the time of the last inspection the pond was empty and all water flowed thru the drawdown pipeline.

L. Monsanto Chemical Co. Lower Dam

The pond was found to be empty at the time of the last inspection. A channel has been excavated and shaped across the bottom of the old pond to direct the flow of the brook into the drawdown pipeline that has now been altered to act as a culvert thru the dam embankment. Should the pipeline become plugged, any water to be ponded would pass over the main spillway structure when the level of stored water reached the crest of the spillway. It would be advisable for the Owner to construct a rack of some sort in front of the drawdown pipe now acting as a culvert to prevent any debris from getting into the culvert and plugging the pipeline.

M. Van Horn Park Upper Dam

Conditions at this dam were the same as those reported a year ago.

The embankment was found to be satisfactory. The lower section of the spillway chute shows very little evidence of any further settlement. It is possible that water may work its way under the floor near the joint at the upper end of the lower masonry section. Should this occur, further settlement of the chute may take place. This condition will be closely observed with each passing year to see if repairs are ever needed.

The sidewalk slabs running longitudinally along the top of the dam, at the downstream side of the structure, have been greatly undermined. Further undermining could result in the collapse of the sidewalk slabs and possible injury to pedestrians using the sidewalk. Though this condition has no bearing on the safety of the dam, it probably should be called to the attention of the City officials so that the sidewalk can be properly repaired. Though attention to this condition was pointed out over a year ago, it would be well to again bring it to the attention of City officials.

Exposed reinforcing rods in the underside of the roof at the inlet end of the conduit, reported for the past two years, should be protected by either being coated with paint or cement grout.

N. Van Horn Park Lower Dam

The embankment at this structure needs treatment of the surface to promote a good growth of sod. The spillway tube thru the embankment seems to have changed shape at about the core section. There was poor grade alignment of this structure when it was built, both as to the invert and the roof. This misalignment appears to have increased in the past year. It would be well to have the Owner check it from time to time to be certain that there is no minute change taking place in the shape of this structure. At the outlet chamber downstream of the spillway tube, a variety of junk and debris has collected at the inlet to the storm drain. If this material is not removed it could move into the drain and greatly reduce the capacity of the pipeline. In time of extreme flood flow conditions the capacity of the drain might be reduced sufficiently to cause flooding on the surface of the ground and damage to property downstream.

Respectfully submitted



George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991  
CD Springfield  
December 10, 1964

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Each and every dam situated within the City of Springfield has now been inspected at least once during the year 1964. The dams were inspected from time to time throughout the year and final inspections were made on December 3, 1964. The following is a report on the general conditions noted at each dam in the City of Springfield.

A. Forest Park Lower Dam

This dam was found to be in satisfactory condition. It is a small dam forming a very small pond and it is low in height. There are no flashboards on the dam and on the day of inspection, water level was at the crest of the spillway. The masonry of the spillway was in good condition. Abutment areas are okay. The dam was considered safe when checked.

B. Forest Park Middle Dam

This dam is in the same general condition as reported to your Board following the inspection of 1963. Earlier this year the undersigned met with representatives of the Springfield Park Department and pointed out to them the deterioration of portions of the spillway as well as deterioration in the masonry of the conduit that passes thru the embankment of the dam. Based upon a final meeting held in the Fall of this past year, the Park Department will include funds in the budget for 1965 to do the necessary maintenance work on this dam.

The concrete masonry of the conduit that carries the overflow from the spillway thru the embankment is in need of repair. Concrete division walls are badly eroded near the base, particularly adjacent to the discharge end. However, erosion and deterioration have taken place at various points along the length of the walls. Maintenance work is needed on the spillway structure itself. Deterioration of this structure does not endanger the dam but if work is not done soon, the cost of repair work will become greater with each passing year. The earth embankment of the dam was found to be in satisfactory condition.

C. Forest Park Upper Dam

This dam is in the same general condition as reported to your Board last year. Conferences in regard to this dam were held as outlined hereinbefore under the report on the Middle Dam. Cap stones at the right end of the spillway have fallen off and unless repairs are made to the spillway masonry in the very near future, it can be expected that more expensive repairs will be required at a later date.

The sidewalls of the conduit that passes thru the embankment is in poor condition particularly at about the water line. Erosion in the masonry has become quite deep. The earth embankment of the dam was found to be in satisfactory condition.

D. Bay State Plumbing & Heating Supply Co. Dam

This dam, as reported last year, is no longer active in that the draw-down gate has been entirely removed and the port to which the gate was formerly attached now provides an opening thru the dam for passage of stream flow. No water is ponded by the dam. The masonry of the dam is in satisfactory condition. No debris is collected in or around the dam and the opening at the old gate location was free and clear of any blockage.

The only way in which this dam can now pond water is either thru blocking of the opening at the gate location or stream runoff that might occur at a rate in excess of the capacity of the gate opening. In either case, the dam is in satisfactory condition to withstand the head of ponded water. Even if this dam should fail, it would release its water directly into the diked portion of the Mill River channel and then into the huge conduit that passes underground into the Connecticut River.

E. U.S. Government Dam at Watershops Pond

This structure does not come under County jurisdiction and, as in past years, was not inspected.

F. Springfield Park Dept. Dam - Sixteen Acres Pond

The stone masonry of the dam itself is quite rough but in satisfactory condition. The alignment and grade of the crest are good. No flashboards are on the dam and water level in storage was at crest elevation. The abutment areas at this dam were found to be in satisfactory condition. However, the large tree growing from the abutment area on the right side of the dam should be cut down as recommended in previous years. Based upon a conference held at the site of this dam with representatives of the Park Department, funds will be placed in the budget for 1965 to remove the tree and to do repair work to the drawdown gate that leaks a bit.

G. Springfield Park Dept. Dam - Breckwood Park

The embankment at this dam was in very good condition. It is massive for its height since it carries a main public street across the stream valley. The spillway itself was satisfactory. No flashboards were on the crest and water level was in storage to the crest elevation. The downstream retaining wall to the right of the conduit thru the dam that was reported as failed a year ago still has not been repaired. This wall simply retains earth at the top of the embankment adjacent to the sidewalk location and has no bearing on the safety of the dam. Since this retaining wall failure was reported to the Park Dept. in a letter from your Board on January 8 of this year, there seems to be no need to bring it to their attention again. In the opinion of the undersigned, the Breckwood Park dam is in very good condition and is safe.

H. Monsanto Chemical Co. Upper Dam

The embankment though quite sandy, and having little or no turf cover, was found to be satisfactory. It was well shaped and no seepage was noted along the toe. The emergency spillway was in good condition. The masonry is well maintained and the channel was free of any debris. The swinging portion of the fence that is built across the spillway is free and functions as designed.

The spillway shaft that is the head works to the conduit thru the embank-

ment has been improved. It is in very good condition. Stoplogs that form the wall towards the pond were in place but the elevation of the upper stoplog is such that the pond has been drawn down about 3 ft. for the Winter season.

The manhole reported last year as having been built in the embankment was investigated and it was found that it is nothing but a junction manhole with free flowing water passing thru the unit.

In the opinion of the undersigned, this dam is in good condition.

I. Monsanto Chemical Co. - Lower Dam

There is a new highway under construction that will bypass the Monsanto plant property and replace the old road that extended thru the Monsanto area into Indian Orchard. This new roadway is on a side hill section with a portion of the roadway on fill along the left side of the old pond area at this dam. In connection with the general construction work going on in the area, earth movement has been taking place and is still going on in the old pond area. In some places earth is being excavated and in other places, the pond is being filled. It is difficult to tell at this time whether or not there will be any pond volume left at the site of this dam following completion of all construction work. The Monsanto plant is expanding continuously and as new units of the plant spread over the area it is possible that this old pond site may eventually become a part of the Monsanto plant proper.

At the present time a drainage ditch parallels the toe of the highway fill in the old pond bottom and this ditch leads from a culvert that carries the brook under the new roadway construction to the drain pipe thru the embankment of the dam. Water collected by the drainage ditch passes thru the embankment in the old drain pipe. On the day of inspection, a small pool of water was formed at the inlet to the drain pipe and this pool was full of miscellaneous debris. The debris could plug the drainpipe and as a result, water could be ponded behind the earth embankment of the dam. However, the old concrete masonry chute spillway is in satisfactory condition and will function if the surface of water in storage raises to the elevation of the spillway crest. In view of the conditions noted at the dam when last inspected, in the opinion of the undersigned the structure is safe. The old earth embankment, though somewhat rough, remains unchanged.

J. Van Horn Park - Upper Dam

This dam was found to be in the same general condition as reported to

your Honorable Board a year ago. The embankment itself was found to be satisfactory. The lower end of the spillway chute appears to be the same and there is no further settling of the lower portion of the structure.

Sidewalk slabs that run longitudinally along the top of the dam embankment on the downstream side of the fill are still greatly undermined and no repairs have been made. The City has been advised of this condition over the past few years and there seems to be no necessity to call it to their attention again since they apparently are not concerned over the matter from the safety viewpoint of people using the sidewalk. Failure of the sidewalk will have no effect upon the safety of the dam.

The exposed reinforcing rods on the underside of the roof at the inlet end of the conduit still have not been protected but they are not rusting to any great degree and they are still satisfactory.

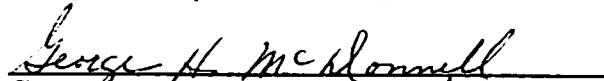
K. Van Horn Park Lower Dam

This dam was also found to be in the same general condition as reported previously. The embankment is rough on the surface and has a number of eroded areas that should be filled, graded and then loamed and seeded. A good growth of turf should be promoted on the surface of the entire embankment and all large trees and brush growth cut.

The spillway tube thru the embankment was found to be satisfactory as was the inlet structure.

At the discharge end of the spillway tube in the entrance structure to the major drain there were many miscellaneous items of debris that could be washed into the drain to either plug it or greatly reduce its flow capacity. This condition has no effect on the safety of the dam but again, as in the report of a year ago, the condition should be called to the attention of the Owner so that the basin can be cleaned.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mg



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Springfield  
Jan. 6, 1964

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

All dams situated within the City of Springfield have now been inspected at least once during the year 1963 and the following is a report on the general condition of each dam in the City of Springfield.

A. Forest Park Lower Dam

This small dam, its both abutments and toe area were all found to be in satisfactory condition. The dam impounds an insignificant amount of water. The structure was considered satisfactory when inspected.

B. Forest Park Middle Dam

The stone masonry of the spillway is still in need of repair. None of the recommendations made a year ago in your letter of Jan. 23, 1963 to the Springfield Park Commission have been carried out.

The concrete masonry of the conduit that carries the overflow from the spillway under the road and thru the dam embankment should be repaired. Concrete division walls are badly eroded, particularly in the vicinity of the water-line.

For a number of years, recommendations have been made to the Springfield Park Department pertaining to necessary maintenance and repairs at this dam. It would now seem necessary that your Board take definite action by directing that the Park Commission indicate a program of repair, to be carried out during 1964.

C. Forest Park Upper Dam

This dam is in the same general condition as reported a year ago. Capstones at the right end of the spillway have fallen off, as predicted in previous annual reports. Damage to the structure will become more extensive and expensive to repair unless needed maintenance is done during 1964.

The conduit under the roadway embankment is in poor condition, particularly at the water-line, where erosion of concrete has become quite deep. The entire conduit should be thoroughly examined and proper repairs carried out during 1964.

The earth embankment of the dam was found to be in satisfactory condition.

D. Bay State Plumbing & Heating Supply Co. Dam

This dam was found to be in satisfactory condition. The masonry was in good condition and the ledge foundation OK. Both abutments of the dam were good.

The gate has been completely removed from the dam and water of Mill River now flows freely thru the large opening in the masonry structure. All debris that was formerly behind the dam and blocking the partially opened gate has been removed and the stream flows in a clean, well scoured bed. No water whatsoever is ponded by this dam. Conditions at the dam, as noted in the recent inspection, are the best that have been noted in many years.

E. Springfield Waste Company Dam

This old masonry dam has been almost completely removed from the stream. Its removal and the removal of the Union Narrow Fabric Company dam hereinafter reported upon, together with the work done at the Bay State Plumbing & Heating Supply Company dam has all been a part of a general improvement in the valley of Mill River, requested for a number of years by various property owners along the river. The masonry of the old dam has been cut down to stream bed grade and only a small amount of masonry remains at each abutment area. The masonry at the right abutment has apparently been left in place to provide protection to the Mill building on the bank of the stream, at time of flood flow conditions.

Since nearly all of the dam has been removed from the stream, no water will be ponded in the future, even in time of flood flow. Since this dam no longer exists and water will not be stored, even in flood time, the structure can be dropped from County records and inspections will no longer be made at this site.

F. Union Narrow Fabric Co. Dam

This old masonry dam has also been completely removed from the valley of Mill River. Its removal has been even more complete than at the Springfield Waste Company dam. All evidence of the old dam has been removed, even the left abutment. The only slight evidence remaining is a portion of the right abutment masonry. The stream bed has been shaped and a portion lined with riprap. Water now flows thru the site of the old dam in a clean, well defined channel.

Since the dam no longer exists and water will not be stored in the future, even in time of flood flow, no further inspections will be needed at this site and the dam can be dropped from County records.

G. U. S. Government Dam at Watershops Pond

This structure does not come under County jurisdiction and was not inspected during the year.

H. Springfield Park Dept. Dam - Sixteen Acres Pond

A large tree, located in the stone work of the right abutment, just downstream of the end of the spillway crest should be cut down. The root structure of this tree is damaging to the stone block masonry of the abutment area. Also, the possibility of the tree being uprooted in a storm could result in the formation of a breach in the abutment masonry.

The removal of this tree has been recommended previously but no action has been taken by the Springfield Park Department.

I. Springfield Park Dept. Dam - Breckwood Park

The embankment at this dam was found to be OK. The spillway structure and the conduit thru the embankment and under the road was also found to be OK.

A stone masonry retaining wall at the top of the embankment, downstream side, situated to the right of the conduit portal has failed and is leaning over downstream. This retaining wall should be repaired. The condition, however, does not endanger the dam.

J. Anglers' Club Dam

This dam has been reported as being purposely breached for a number of years. At the time of the last inspection, no water was ponded, the spillway facilities have been completely removed and the abutment areas, particularly to the left of the stream have been

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graded and destroyed. The only evidence of the old dam now existing is the small dike to the right of the location of the former spillway. The old pond area, upstream of the dam is becoming overgrown.

It would appear as if this structure will never be reactivated. The area surrounding the old dam site that once was open and undeveloped country is now fairly densely developed with housing.

It is recommended that this dam be dropped from County records and, in the opinion of the undersigned, no further inspections are necessary at this site.

K. Monsanto Chemical Co. Upper Dam

At the time of the most recent inspection, the pond at the dam was found empty. The drawdown facilities were wide open and all stoplogs were out of the slots at the inlet structure. The drawdown pipe and its discharge end were OK. The earth embankment was in satisfactory condition.

The spillway was found to be satisfactory and the moveable section of the fence across the spillway channel was found to be free and operating.

The new manhole built in the embankment over the drawoff pipe has been completed and the top of the manhole has been capped with a heavy cast iron frame and cover. At the time of the next inspection, the undersigned will bring opening tools and will examine the inside of this manhole structure. The examination will be made at a time when the pond is full of water and true operating conditions relative to this manhole can then be checked.

L. Monsanto Chemical Co. -Lower Dam

This dam was in the same general condition as reported previously. No water has been stored at this site for a number of years. The drain pipe was open and operating. The spillway was found to be in fair condition and, should flood flow exceed the capacity of the drain pipe or, should the drain pipe become plugged, the spillway will automatically go into operation once water is ponded to its crest.

It would appear as if this dam will not be reactivated, at least in the near future. However, annual inspections will continue until such time as the dam is breached.

M. Van Horn Park-Upper Dam

This dam was found to be in the same general condition as reported

in 1962. The embankment was satisfactory. The lower section of the spillway chute appears to have settled a bit more but there is no sign of the overflowing water working its way thru the joints and under the masonry. The condition will be observed annually and if and when corrective action is deemed advisable, a recommendation will be made in connection therewith.

Sidewalk slabs running longitudinally along the top of the dam embankment on the downstream side of the fill have been greatly undermined.

Undermining seems to have extended from conditions noted a year previously. Eventually the sidewalk slabs will collapse and it is possible any pedestrian walking on the slabs at the time of collapse will be injured. Though this condition has no bearing on the safety of the dam, it should be called again to the attention of the City officials, so that the sidewalk can be properly repaired.

Exposed reinforcing rods in the underside of the roof at the inlet end of the conduit should be protected by either being coated with paint or cement grout.

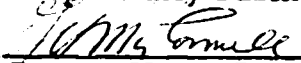
N. Van Horn Park Lower Dam

The spillway tube was in about the same condition as reported previously. Though misalignment of the tube appeared to have increased at the time of the inspection a year ago, no change in the misalignment was noted this year. At the toe of the spillway tube and where the entrance to the major drain exists, much debris was noted in the masonry basin structure. Debris consists of a chair, miscellaneous pieces of wood and general junk of all sorts. Any of these materials could be washed into the main drain, flood the drain completely or in part and result in overflowing of flood waters onto property downstream. This condition has no effect on the safety of the dam but should be called to the attention of the Owner so that the basin can be cleaned periodically.

The earth embankment is in fair condition but needs shaping, particularly in the vicinity of the discharge tube and on the downstream face, directly above the tube. A good growth of sod should be promoted on the embankment and all eroded and worn surfaces should be repaired.

The toe area of the embankment was found to be satisfactory. The upstream face of the dam embankment was in poor condition. The spillway inlet structure in the pond was found to be satisfactory. Water level in storage was at the low level inlet of the structure.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

*CONSULTING ENGINEERS*

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Springfield  
November 2, 1965

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has completed the inspections of all dams within the City of Springfield. Every dam within Springfield has been inspected at least once during the year 1965. The following is a report on the general condition noted at each of the dams in the City of Springfield.

A. Forest Park Lower Dam

The concrete of the spillway and the abutment masonry, including the loose stone blocks were all found to be okay. Water was overflowing the spillway crest. The area of the dam and the small pool immediately downstream thereof has been completely fenced in with a chain link type of fence. Apparently, this pool and the dam area is now used during the Summer months for animal display purposes. The fence has been constructed across the crest of the spillway and in this location it consists of pipe posts and rails with wire fencing. However, the wire in this location is not the woven chain link type but is a weaker and thinner type of wire with fairly large openings. In time of flood flow conditions, should the fence collect any debris, the force of the water will undoubtedly cause the fence to bend or break open. In the opinion of the undersigned, the fence across the crest of the spillway does not endanger the dam.

B. Forest Park Middle Dam

This dam is now in very good condition. The masonry spillway has been repaired. All missing stone masonry and concrete masonry has been replaced and crest stones have been grouted in place and all eroded and missing areas rebuilt.

The three section culvert thru the embankment has had all eroded masonry repaired and whereas reinforcing steel was exposed previously, this steel is now completely and properly embedded in new concrete.

The earth embankment is in good condition and a local drain pipe which formerly caused embankment erosion has been rebuilt and an end wall constructed of concrete.

At the time of inspection, water was overflowing the crest of the spillway. The dam was considered safe when checked.

C. Forest Park Upper Dam

This dam is in very good condition. The stone and concrete masonry of the spillway and abutment areas has been completely repaired. Missing cap stones have been replaced.

The large arch culvert that passes thru the embankment has had the eroded side walls repaired with new concrete. At the discharge end of the culvert the side retaining walls have been rebuilt and are in excellent condition.

The embankment is in very good condition. Water level in storage was at the spillway crest. This dam was considered safe when inspected.

D. U. S. Government Dam at Watershops Pond

This structure does not come under County jurisdiction and, as in past years, was not inspected.

E. Springfield Park Dept. Dam - Sixteen Acres Pond

This dam was found to be in good condition. All trees formerly growing from the abutment areas have now been cut down. Though the stone masonry face of the overflow dam is quite rough, the structure was considered to be okay. The alignment and grade of the spillway crest was found to be good. No flashboards were on the crest of the dam.

The discharge pipe from the drawoff gate was not leaking any water and apparently the gate itself has been repaired or replaced as agreed by Park Dept. personnel following a special inspection last year. In the opinion of the undersigned, the dam is safe.



F. Springfield Park Dept. Dam - Breckwood Park

The spillway at this dam and all related masonry was noted to be in good condition. The embankment is very wide for its height and carries a major roadway.

At the downstream slope of the embankment and adjacent to the main culvert headwall, two small masonry wing walls have failed and are leaning over. These two wing walls do not affect the safety of the dam in any manner whatsoever. The Springfield Park Department was previously notified of the failure of one wing wall but no action has been taken to correct the condition.

Water in storage was at the crest of the spillway on the day of inspection. The dam was considered to be safe when checked.

G. Monsanto Chemical Co. Upper Dam

The embankment of this dam was found to be satisfactory as to shape and surface cover. However, on the shore slope directly in line with the spillway intake shaft, cavities were found under the sod surface. While making the inspection, the undersigned, while walking on the sod, experienced the collapse of the sod into the sub-surface voids. The voids are not deep but the surface of the embankment should be dug out, the cause of the voids determined and then the voids should be filled with compacted soil.

The spillway shaft itself was satisfactory. Stop logs in place were above the elevation of the water level in the pond. Water flowed out of the pond in the chute spillway. This spillway was found to be satisfactory.

H. Monsanto Chemical Co. Lower Dam

This dam was found to be in the same general condition as noted in recent years. The structure is not active and water passes thru the embankment in a drain pipeline. The embankment is becoming fairly steep at the drain inlet location. No pond is forming whatsoever and the stream is now channeled in such a way that it flows parallel to the toe of the new highway embankment built adjacent to the pond site.

Should the drain become plugged, the pond will be reactivated and consequently, the dam embankment and the spillway should be properly maintained at all times. If the pond is to be used again, it would be



advisable to breach the embankment at the location of the drain so that water cannot be stored under any condition of flood flow. The old pond bottom has been graded off and is now relatively smooth.

I. Van Horn Park Upper Dam

The embankment of this dam was okay. The twin culvert tube spillway was satisfactory. The exposed reinforcing bars in the roof of the culvert tubes have never been covered with protective concrete. This is not a serious matter and the few exposed reinforcing rods will not weaken the structure if they do eventually deteriorate from rusting.

The discharge chute of the spillway structure was okay. The lowest section of the chute, particularly on the left side, seems to have settled more but there has been no separation longitudinally. This condition does not as yet endanger the dam.

The sidewalk on the public street that is carried by the dam embankment is still seriously undermined, and a large portion of each concrete slab is unsupported. This situation has been reported to the Park Department for a number of years but no corrective action has been taken.

The Park Department should be advised to correct this condition or to notify the Department of Streets and Engineering if it is the responsibility of that Department to maintain the embankment and sidewalk.

J. Van Horn Park Lower Dam

The embankment is in the same general condition as reported a year ago. The downstream surface does not appear to be as rough. However, it would be advisable to promote a good growth of turf on the surface.

The spillway inlet shaft and the spillway tube thru the embankment were satisfactory. The outlet works were okay but debris has collected in the outlet works and could be washed into the main drain leading therefrom. This debris should be removed.

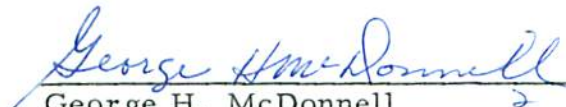
The toe of the embankment was found to be okay.

K. Bay State Plumbing & Heating Supply Co. Dam

This dam remains inactive. The sluice gate has been removed from the sluice gate structure as previously reported and the flow of the river passes thru the dam via the gate opening. The masonry of the dam is in satisfactory condition and the dam will only store water if the flow of the river exceeds the capacity of the opening or if the opening becomes plugged with debris.

Inspections will continue at the site of this dam as long as it remains in a condition whereby it could pond water. In the opinion of the undersigned, the dam is satisfactory as now operated.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mbf

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

*CONSULTING ENGINEERS*

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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Springfield  
December 27, 1967

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has completed the inspections of all dams situated within the City of Springfield. Every dam within Springfield has been inspected at least once during the year 1967. The following is a report of the general condition noted at each of the dams in the City of Springfield.

A. Forest Park Lower Dam

This dam was found to be in the same general condition as last reported to your Board. The dam is well maintained and found to be in a good state of repair. Water was overflowing the spillway crest on the day of inspection. The area at the dam and the small pool immediately downstream thereof remains completely fenced in with a chain link type of fence. The fence has been constructed across the crest of the spillway. At this location it consists of pipe posts and rails with wire fencing. The wire at this location is a weak wire and of a type thinner than the remaining portion of the fencing. This portion of fencing is not in good condition and, in time of flood flow it will fail thus leaving the crest of the spillway free to pass high rates of discharge without interference of the fence. In the opinion of the undersigned this dam is safe.

B. Forest Park Middle Dam

The spillway at this dam was found to be in excellent condition. The repair work accomplished a few years ago is satisfactory in every respect. The crest of the spillway was found to be okay and there was no sign of erosion or wear anywhere.



# **TIGHE & BOND CONSULTING ENGINEERS**

The three-sectional conduit under and through the embankment was in good condition. The new concrete shows little or no sign of water erosion. The end wall at the storm drain to the left of the spillway portal was in good condition.

The embankment itself, carrying the roadway over the dam, was in good condition. The toe area was satisfactory.

There were no flashboards on the spillway and water level was at the crest of the masonry structure at the time of inspection.

Boards or planks have been placed against the masonry at both side spillway conduits at the upstream end just below the spillway wall. These boards or planks thus form a pool in the base of the spillway. This pool does not endanger the structure in any way whatsoever.

In the opinion of the undersigned the dam was in very good condition and safe when checked.

## **C. Forest Park Upper Dam**

This spillway was found to be in very good condition. The crest was okay and no flashboards were in place. Water was overflowing the spillway. Masonry repairs completed a few years ago are standing up very well.

The arch conduit through the embankment was in good condition. The concrete construction on the face of each side wall of the conduit placed at the time of the repair work a few years ago, was found to be in very good condition.

The earth embankment was satisfactory. The toe area was okay and the roadway over the top of the embankment was good.

This dam was considered safe when inspected.

## **D. U.S. Government Dam at Watershops Pond**

A special inspection report was submitted in connection with an inspection of this dam. The report was dated June 12, 1967 and the inspection was made on June 5, 1967. As pointed out in this special report, the dam was found to be in good condition.

# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

### **E. Springfield Park Department Dam, Sixteen Acres Pond**

All tree growth in the general area of each abutment has been cut down. Previously, in the report submitted of the last inspection, trees growing from the abutment areas themselves had been removed. However, in connection with major roadway construction adjacent to the dam, much clearing has been done in the vicinity of the dam.

The masonry crest of the dam was found to be okay. It had a good grade and good alignment. No flashboards were on the crest. Water level in storage was down below the crest and the drawdown gate at the right side of the dam was part way open.

The left abutment area in particular has been changed by clearing and construction of the widened roadway leading into the Sixteen Acres section of Springfield.

The stone masonry of the dam leaks at various areas and leakage can be noted emerging from the masonry joints. The downstream face of the masonry dam is in fairly good condition except at the left end where, a few feet below the crest elevation, there is being formed, apparently by erosion, in the face of the dam, a fairly large cavity. Maintenance work should be done to prevent further extension of this cavity. This repair and maintenance work should be accomplished during 1968.

### **F. Springfield Park Department Dam, Breckwood Park**

The spillway and conduit at this dam was found to be in good condition. The two small masonry wing walls reported as having failed in the past, are still leaning over but their failure does not affect the safety of the dam whatsoever. These wing walls are at the top of the embankment and at the downstream side. The Park Department has been notified of the failure of wing wall construction but no action has been taken to correct the condition. These wing walls do nothing more than act as retaining walls for the top of the embankment fill.

# **TIGHE & BOND CONSULTING ENGINEERS**

Water level in storage was at the crest of the spillway at the time of inspection. The embankment itself was satisfactory and although there is some surface wear and gully formations from foot traffic, the embankment is so massive in relation to the height, this type of deterioration has no affect on the safety of the structure whatsoever.

In the opinion of the undersigned the dam was safe when inspected.

G. Monsanto Chemical Company Upper Dam

On the day of inspection, December 15, 1967 the pond was found to be empty. All stop logs have been removed from the slots in the wall of the vertical shaft spillway entrance. The only stop log in place was the bottom stop log. Water of the brook was flowing directly into the bottom of the spillway shaft, then into the pipe which extends under and across the embankment.

The embankment was found to be in satisfactory condition. However, brush growth on the downstream face is becoming quite thick. This growth should be discouraged and kept cut down. The owners should develop a growth of sod over the entire embankment, particularly, on the downstream side, if at all possible. The toe area of the embankment was found to be satisfactory.

The masonry spillway shaft was okay. The outer surface of this shaft is constructed of brick. The brick is becoming eroded at about the normal water line elevation. This erosion is not deep enough to be of any concern at the present. However, in the not too distant future repairs should be made to the eroding brickwork. The concrete masonry inside the shaft at the base immediately adjacent to the discharge pipeline opening shows some sign of water erosion and in the near future repair work may be necessary at this location.

In the opinion of the undersigned the dam is safe. However, the owner should be advised to keep the brush cut at the downstream slope of the embankment and to promote a growth of turf on this portion of the embankment surface if at all possible.

# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

### H. Monsanto Chemical Company Lower Dam

This dam was in about the same condition as previously reported. The structure is no longer active and water passes through the embankment in a drain pipeline. No pond whatsoever is formed and the stream is now channelled in such a way that it flows in a prepared ditch parallel to and at the toe of the new highway embankment built adjacent to the old pond site.

The upper end of the old pond bottom is being filled and re-graded. If for any reason the flow of the stream greatly exceeded the capacity of the drain through the embankment, or if the drain should become plugged with debris, a shallow pond would be formed and, should the water level rise to the elevation of the old spillway channel, this structure would operate to relieve the flow. If this pond is not to be used again then it might be advisable to breach the embankment at the location of the drain so that water cannot be stored by the old dam under any condition of flood flow or as a result of the drain becoming plugged with debris.

### I. Van Horn Park Upper Dam

Improvements have been made at the top of this dam embankment by placing of fill under the sidewalk on the downstream side and then paving the top of both sloping sides of the embankment with asphaltic concrete. The embankment itself was found to be in satisfactory condition.

The spillway chute was satisfactory. The end section seems to have settled a bit more but, the amount of settlement to date does not affect the safety of the dam nor does it cause any problem in connection with the operation of the spillway. The rock fill at the discharge end of the spillway chute is satisfactory.

The toe area of the embankment was found to be in very good condition. Water level in storage was at the crest of the twin spillway conduits through the embankment is covered with gravel and sand. This condition increases the elevation of water in storage by a slight amount. The sand and gravel could be manually cleaned out of the conduits. However, whenever a good heavy flow does occur this material will be washed out and deposited downstream of the spillway chute. There is no need to manually remove this material at this time.

In the opinion of the undersigned this dam is safe.

J. Van Horn Park Lower Dam

The embankment of this dam is quite rough on both sloping faces, and particularly on the downstream face at about the spillway conduit location. The embankment is fairly sizeable and the roughness of the sloping surfaces does not endanger the dam. The rough condition existing year after year indicates a lack of maintenance and attention to the condition of the embankment.

Water level was found to be at the normal elevation on the day of inspection. The inlet shaft and the tube spillway through the embankment were both found to be in satisfactory condition.

The discharge basin at the end of the spillway tube was found to be okay. Debris has collected in this basin as noted at previous inspections and the basin should be cleaned from time to time to prevent this material from entering the municipal drain. However, this condition does not have anything to do with the safety of the dam and the need for cleaning the drainage system has been pointed out to City Officials in the past. There seems no necessity to repeat this advice again. Some surface erosion and subsidance was noted just downstream of the settling basin below the toe of the dam and under the right slope paving of the drainage ditch downstream of the dam. This condition does not affect the safety of the dam. If the condition becomes more extensive, then erosion may extend back into the area of the dam. A note of the condition is being made herewith so that at the time of the next inspection, the condition will be called to the attention of the undersigned for observation and comment as necessary.

In the opinion of the undersigned this dam is safe.

K. Bay State Plumbing and Heating Supply Co. Dam

This dam remains inactive. The gate at the sluiceway through the dam is opened and no water is stored. Some debris has collected behind the gate opening but the amount is small. Flow of the stream passes through the opening at the gate structure location.

The undersigned discussed the dam with the owner and he indicates that he has no planned use for the dam and does not ever intend to close the gate opening.




**TIGHE**  
**& BOND** CONSULTING ENGINEERS

The dam is just upstream from the huge conduit that extends under Columbus Ave. and under Route 91 discharging Mill River into the Connecticut River. Any failure of this dam would simply release water into the confines of the huge conduit. Should the dam ever fail in time of flood flow, the amount of water stored by the structure would be so small that there would be no affect by the loss of the structure during flood flow conditions.

The area immediately upstream of the dam is narrow and the dam is not high. The amount of water stored under normal conditions, should the gate ever be closed, is small.

In the opinion of the undersigned, conditions at this dam are satisfactory. The site of the dam will be inspected from time to time to be certain that the dam remains inactive.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Springfield  
December 2, 1969

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has completed the inspection of every dam situated within the City of Springfield. The dams within Springfield have been inspected at least once during the calendar year 1969. The following is a report on the general condition noted at each of the dams coming under County jurisdiction.

A. Forest Park Lower Dam

This small dam was found to be in the same general condition as reported in previous years. It is well maintained and was found to be in a very good state of repair.

The trickle discharge at the left side which emerges from the aesthetically placed boulders and rocks, is pipe fed from the pool above the dam and thus is not seepage or leakage.

The abutment areas and the toe area were all noted to be in good condition. The crest of the dam was o.k. On the day of inspection water level was overflowing the crest.

The fence that formerly extended across the crest of the spillway has been removed. No flashboards were on the spillway.

The small pool, just downstream from the dam, referred to as the toe pool, was in satisfactory condition.

No changes have been made at this dam other than the removal of the wire fence across the spillway crest, since the time of the last inspection, and in the opinion of the undersigned, the dam is safe.

B. Forest Park Middle Dam

The spillway at this dam is o.k. The masonry is in very good condition. The crest was observed to be in excellent shape and no flashboards were on the crest.

The pool at the toe of the spillway is fairly deep. Entrance to the three-sectional spillway conduit thru the embankment is partially plugged. All debris collected in front of each of the three sections of the conduit should be removed to prevent any obstruction to the flow of water.

The embankment forming the dam was o.k. It is very wide in relation to its low height. The road pavement extending across the top of the embankment was in satisfactory condition.

Side slopes of the embankment are rough on the surface and some brush as well as tree growth occurs on the slopes. Because of the great width of the embankment, in relation to its low height, this growth does not endanger the dam. The toe area of the embankment was observed to be satisfactory.

The three-sectional spillway conduit itself was in good condition. The outlet facility was o.k.

The storm drain end wall near the conduit outlet is in good condition.

In the opinion of the undersigned, this dam is safe. However, the Park Department should remove the debris which has collected in front of the three-sectional spillway conduit at the toe pool in front of the spillway.

C. Forest Park Upper Dam

The curved spillway at this dam was noted to be o.k. Masonry was satisfactory and water level on the day of inspection was overflowing the crest. There were no flashboards on the crest. There were no flashboards on the crest.

The face of the stone wall just downstream of the spillway and on the upstream side of the embankment, as viewed from the spillway, is eroding at the lower left and a shallow cavity is forming. This condition is not bad as yet. The cavity will be observed during the inspection next year and any extension of the cavity will then be reported to your Board with a recommendation that the Park Commissioners be notified.

The embankment of the dam was o.k. Trees and brush growing from the slopes do not endanger the dam because of the great width of this embankment in relation to its shallow height. The road extending along the top of the dam is in good condition.

The arch spillway conduit and the repaired masonry walls within the conduit were all noted to be in good condition.

In the opinion of the undersigned, this dam is safe.

D. U.S. Government Dam at Watershops Pond

This dam apparently is now under the control and jurisdiction of the City of Springfield.

The dam was noted to be in good condition. The masonry overflow structure was o.k. Abutments were good.

The movable crest gate is partly rolled down and is in good condition. Water level in storage was at the crest of the spillway movable gate.

The toe area in the bed of the stream was satisfactory. The dam has been constructed on ledge which is exposed at the toe.

In the opinion of the undersigned, this dam is in good condition and is safe.

E. Springfield Park Department Dam, Sixteen Acres Pond

The abutment areas at this dam have been improved by the removal of the tree growth. The crest of the dam is in fair condition and it is on fairly good grade and alignment. On the day of inspection water was overflowing the crest. No flashboards were on the crest.

The face of the dam stone masonry in general was noted to be o.k. On the face, at the left side of the dam just below the crest, a cavity still exists but it has not increased in depth or area. The cavity will be watched in future inspections.

In the opinion of the undersigned, this dam is in satisfactory condition and is considered to be safe.

F. Springfield Park Department Dam, Breckwood Park

The dam, spillway and the conduit thru the embankment were all noted to be in good condition. Concrete is in very good condition. Water level in storage was at the crest of the concrete overflow and no flashboards were on the crest.

The embankment at this dam is very wide in relation to its height. The embankment carries a wide paved roadway. The roadway is in good condition. There is no evidence of any settlement or cracking of the pavement.

Tree growth occurs on the slopes of the embankment but because of the great width of this embankment, the tree growth does not endanger the dam in any way.

The surface of the embankment is eroded on both slopes in the vicinity of the spillway conduit location. This erosion apparently results from foot traffic. It does not endanger the dam in any way.

On the downstream side of the dam at the top edge, masonry retaining walls are failing and are leaning downstream. This failure has been reported to the Park Dept. in the past. Loss of these walls does not affect the dam in any way insofar as safety of the dam itself is concerned.

In the opinion of the undersigned, the dam is safe.

G. Monsanto Chemical Company Upper Dam

The embankment forming this dam is in fair condition. All brush growth on the downstream slope and along the downstream toe of the dam should be removed. The downstream surface of the dam should be loamed, seeded and fertilized so as to develop a good turf cover.

On the day of inspection the pond was empty. The drawdown pipe was operating and stoplogs were out of the slots in the spillway vertical shaft. A screen was in place of the stoplogs.

It is recommended that the owner be advised to remove the brush growth and develop a good turf cover on the downstream slope and at the toe of the dam as recommended hereinbefore.

H. Monsanto Chemical Company Lower Dam

This small dam was in the same general condition as previously reported. The drain is open, is clean and functioning. All flow of the stream passes thru the dam via the drain conduit. No water whatsoever is ponded.

If the owner does not plan to pond water again, the embankment should be breached.

The old spillway is in poor condition. It is eroded at the downstream end and the central section is partially plugged with piled earth and debris.

In the opinion of the undersigned, the dam will serve no purpose whatsoever as it now exists and can only become a liability to the owner if it ponds water. Though the dam itself as now existing does not endanger persons and property downstream, a channel should be dug thru the dam to eliminate its ponding of water should the drain become plugged.

I. Van Horn Park Upper Dam

The embankment forming this dam was found to be in good condition. The toe area was noted to be reasonably dry. There was some erosion on the downstream slope in the vicinity of the spillway and at the outlet from a catchbasin near the toe, not too far distant to the right of the spillway structure. The erosion is not dangerous because of the fact the embankment is very wide in relation to its height.

The lower portion of the spillway chute has settled more at the left side of the upstream end. The joint in the floor of the spillway at this location should be sealed so that water will not flow thru the joint, under the floor, and produce further settlement.

The spillway itself is satisfactory other than the settlement as just mentioned. The toe of the spillway is in satisfactory condition and there is no stream bed erosion.

The road extending along the top of the embankment was in good condition. There was no evidence of cracking or settlement. The culvert extending thru the embankment, and which is a part of the spillway facility, was found to be o.k. There were no stoplogs at the culvert entrance. The culvert was relatively free of debris. There was some sand and gravel on the floor but this does not affect the operation of the culvert.

The wingwalls on each side of the culvert entrance have begun to lean a bit toward the lake. This condition is not dangerous and does not affect the safety of the dam.

In the opinion of the undersigned, the dam is safe. However, the owner should take steps to seal the joint in the floor of the spillway chute at the upper end of the lower section where settlement has been taking place during the last few years.

J. Van Horn Park Lower Dam

The inlet structure and bar rack at both the lower portion of the structure and at the top of the structure were noted to be o.k.

The conduit thru the dam appeared to be taking on an elliptical shape at about the 1/4 to 1/3 point from the upstream end. Horizontal and vertical gauge points should be established inside the conduit for the purpose of periodically checking the vertical and the horizontal dimensions. The undersigned is of the opinion that there is some movement taking place which has changed the shape of the conduit.

Check and gauge points should be established at three different locations to provide facilities for periodically checking the vertical and horizontal dimensions of the conduit at these three different locations. Thus, twelve gauge points should be established.

Some longitudinal cracking of concrete was noted at the inside top of the conduit in the area where the undersigned is suspicious that motion has taken place.

The toe outlet facility at the end of the conduit was o.k. except for the fact that the entrance to the pipe from the outlet chamber is plugged with heavy debris.

A major storm would no doubt cause overflowing of the outlet structure since water would not be able to enter the drainpipe at design capacity.

The surface of the ground just downstream of the outlet structure and directly over the outlet pipe has settled. It would appear that surface water is making its way into the drainpipe either thru open joints or cracks in the pipe.

The embankment itself is poorly maintained, but because of its massive size in relation to the quantity of water stored, the embankment is safe. Many trees grow from the surface of the embankment, including both slopes, and there is little or no turf cover on the sandy material of the embankment.

The owner should install the recommended twelve gauge and check points within the conduit, should clean the debris from the outlet facility at the toe of the dam, and should take steps as necessary to prevent washing of soil into the conduit pipe just below the outlet facility.

K. Bay State Plumbing and Heating Supply Co. Dam

This dam remain inactive. No water is stored since the drawdown outlet is open.

The dam is just upstream from the huge conduit that extends under Columbus Ave. and then under Route 91 to discharge the water of Mill River into the Connecticut River. Any failure of this small dam would simply release the stored water into the confines of the huge conduit. Since the amount of water that could be stored by the dam is very small, failure of the dam would have no effect on lives or property downstream.

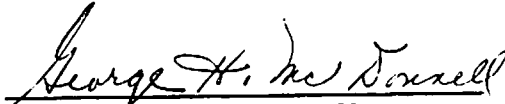
The area immediately upstream of the dam is narrow. The dam is not high.



**TIGHE**  
**BOND** *CONSULTING ENGINEERS*

In the opinion of the undersigned, conditions at this dam are satisfactory. The site will be inspected from time to time to be certain that the dam does remain inactive.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

Springfield Water Main Number 2 - 1893



1893 Reports

Lands Taken 1893 of Springfield, Chicopee & Ludlow for the Location of Springfield Water Main Number 2. Recorded in the Hampden County Registry of Deeds on April 26, 1893: James R. Wells, Register.

City/Town	Ludlow
City/Town	Springfield
City/Town	Chicopee
Name	Booth, Edwin
Name	Suprenant, Cissire
Name	Jones, Stephen C
Name	Gamash, Theodore
Name	Sikes, Danford W
Name	White, Lovinski F
Name	Sikes, Otis
Name	Gamash, Louis
Name	Barber, Hollis
Name	Lyon, Fred W
Name	Langrin, Peter
Name	Bliss, Edmond
Name	Clark, Eugene J
Name	Gamash, William
Name	Chapin, Henry M

Name	Jones, Henry S
Name	Miller, William A
Name	Johnson, Lemuel
Name	Johnson, Cyril
Name	Chapin, Henry M
Name	Dunlap, Welcome
Name	Shean, Thomas
Name	King, Julia M
Name	Bennett, Adelbert
Name	Tetreault, Alexander
Name	Keyes, Samuel F
Name	Pierce, J D
Name	Simonds, Lucius
Name	Dickinson, Edward
Name	Indian Orchard Company
Name	Wright, Jane S
Name	Sikes, Otis
Name	Wesson, Angeline E
Name	Simonds, Lucius
Name	Morton, F H
Name	Chapin, Chester W
Name	Fitzgerald, Edmond

Name	Osborne, Cyrus
Name	Murphy, Patrick
Name	Shaw, Charles
Name	Morton, G M
Name	King, Thomas
Name	Gamash, David
Name	Bradley, Adoniram
Name	Brunton, M J
Name	King, Thomas
Name	Fitzgerald, Patrick
Name	Howell, John
Name	Southworth Paper Company
Streets	St James Avenue
Water	Chicopee River
Water	Poor Brook

LOCATION  
OF  
SPRINGFIELD WATER MAIN  
NUMBER 2.

LANDS TAKEN 1893

of

LUDLOW CHICOPEE SPRINGFIELD



Received and Filed with Hampden County Registry  
of Deeds. April 26 1893

Attest. James R. Wells. Register



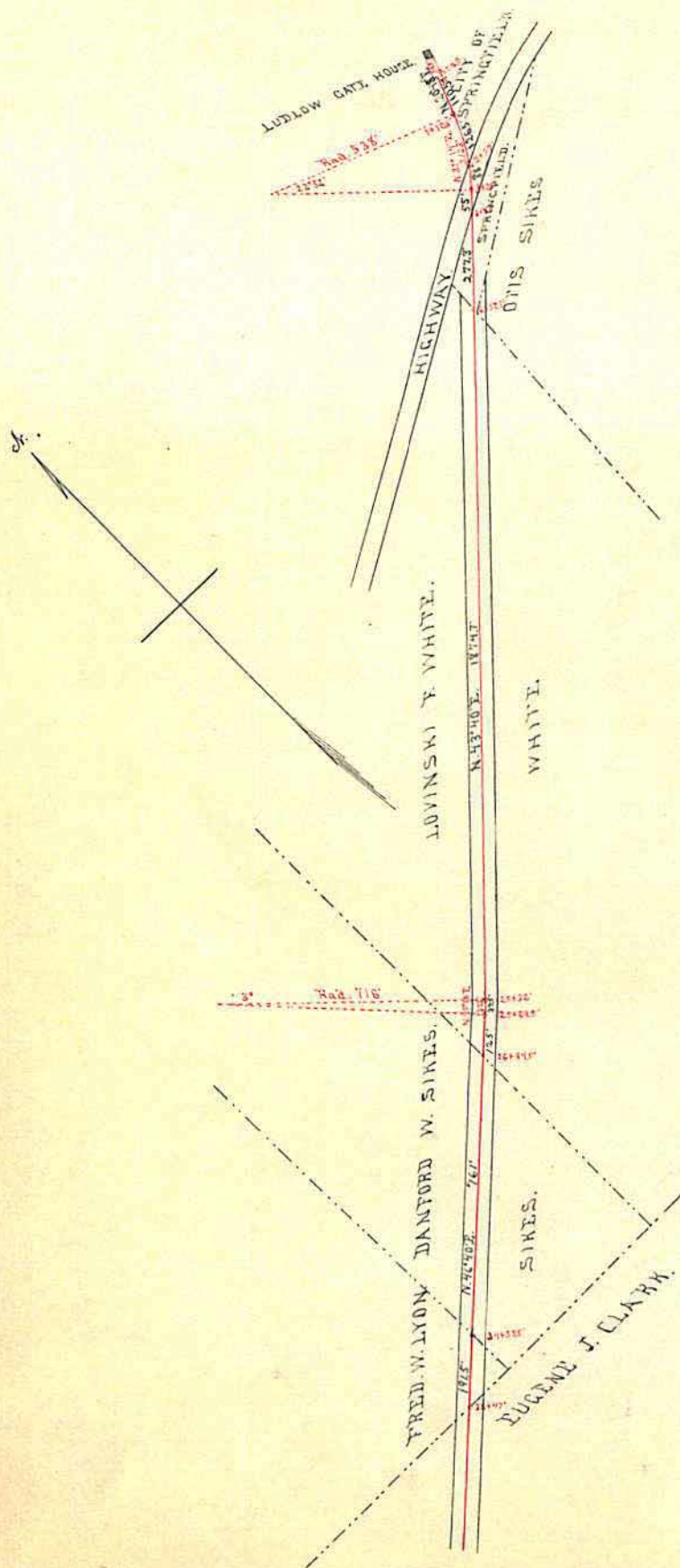
The City of Springfield, acting by its Board of Water Commissioners, in accordance with authority given by the Legislature of the Commonwealth of Massachusetts, and <sup>and maintaining</sup> for the purpose of laying down an aqueduct or pipes from its source of water supply in the Town of Ludlow, have taken and do hereby take the right of way over the herein described lands situated in the Town of Ludlow and the Cities of Chicopee and Springfield, in the County of Hampden, to wit: a certain piece or strip of land sixty-six(66) feet wide, extending from the present Ludlow Gate House in the Town of Ludlow; thence passing southerly of the house owned and occupied by Stephen C. Jones; thence passing between the houses owned by Welcome Dunlap on the north and Cyril and Lemuel Johnson on the south; thence crossing the highway near the north-westerly corner of the new cemetery in the Town of Ludlow; thence crossing another highway nearly in front of a house belonging to the heirs of the late Samuel F. Keyes; thence crossing another highway north-westerly of a house belonging to Alexander Tetreault; thence crossing the boundary line between the Town of Ludlow and the City of Chicopee near the Chicopee River; thence crossing said River about one hundred (100) rods below the iron bridge; thence crossing the highway leading from Indian Orchard to Chicopee Falls near the dry bridge under the Athol branch of Boston and Albany Railroad; thence passing southerly of the house owned and occupied by John Fitzgerald; thence passing southerly of the house owned by the heirs of the late Chester W. Chapin and occupied by one Robbins; thence crossing Saint James Avenue



in Springfield near the house owned and occupied by John Howell and entering Carew Street about eight hundred and forty (840) feet westerly of its junction with Saint James Avenue.

Meaning and intending to take a Right of Way to lay and forever maintain a line or lines of pipe for the purpose of conveying water to the said City of Springfield from the reservoir of the said City in said Town of Ludlow, over any or all lands lying within thirty-three (33) feet on either side of a Center Line of Location, which Center Line is located and defined as follows, to wit:





Scale, 1 Inch = 400 Feet



Beginning at Station 0, shown on the plan annexed and made a part hereof, which Station 0. is located at a point fifty-five and eight tenths (55.8) feet from the front of the Ludlow Gate House, in the Town of Ludlow, and eleven (11) feet from the line of the easterly side of said Gate House; thence on land belonging to the City of Springfield S. 20° 48' W. one hundred and ten and five tenths (110.5) feet to station 1 + 10.5' on said annexed plan;

*City of  
Springfield*

thence on land belonging to the City of Springfield, on a true curve with a radius of five hundred and thirty-eight (538) feet, one hundred and twenty-six and five tenths (126.5) feet to station 2 + 37' on said annexed plan, which is located on the westerly side of a highway leading from Ludlow Mills to Bondville;

*Highway*

thence in the said highway in a continuation of said curve, eighty-eight (88) feet to station 3 + 25' on said annexed plan, which is at a point S. 32° 14' W. two hundred and thirteen and three tenths (213.3) feet from station 1 + 10.5' on said annexed plan;

thence in the said highway in a straight line tangent to the preceding curve, S. 43° 40' W. fifty-five (55) feet to station 3 + 80' on said annexed plan, which is on the easterly side of said highway;

*City of  
Springfield*

thence on land belonging to the said City of Springfield S. 43° 40' W. two hundred and seventy-seven and three tenths (277.3) feet to station 6 + 57.3' on said annexed plan, which is on the dividing line between land belonging to the said City of Springfield and land belonging to Lorinski F. White. Near station 6 + 57.3' on said annexed plan, the location covers a small triangular piece of land belonging to Otis Sikes, and bounded northerly by land be-

*Otis Sikes*



5  
longing to the said City of Springfield, westerly by land belonging to said White and south-easterly by a line parallel to and distant thirty-three (33) feet <sup>south-easterly</sup> from the herein described center line.

*Lorinski &  
White.*

Thence from the said station 6 + 57.3' on said annexed plan, on land belonging to the said White, S. 43° 40' W. one thousand eight hundred and seventy-four and seven tenths (1874.7) feet to station 25 + 32' on said annexed plan;

thence on land belonging to the said White, on a true curve, with a radius of seven hundred and sixteen (716) feet, thirty-seven and five tenths (37.5) feet to station 25 + 69.5' on said annexed plan, which is at a point S. 45° 10' W. thirty-seven and five tenths (37.5) feet from station 25 + 32' on said annexed plan;

thence on land belonging to the said White, on a straight line, tangent to the preceding curve, S. 46° 40' W. one hundred and twenty-five (125) feet to station 26 + 94.5' on said annexed plan, which is on the dividing line between land belonging to the said White and land belonging to Danford W. Sikes;

*Danford W.  
Sikes.*

thence on land belonging to the said Sikes S. 46° 40' W. seven hundred and sixty-one (761) feet to station 34 + 55.5' on said annexed plan, which is on the dividing line between land belonging to the said Sikes and land belonging to Fred. W. Lyon;

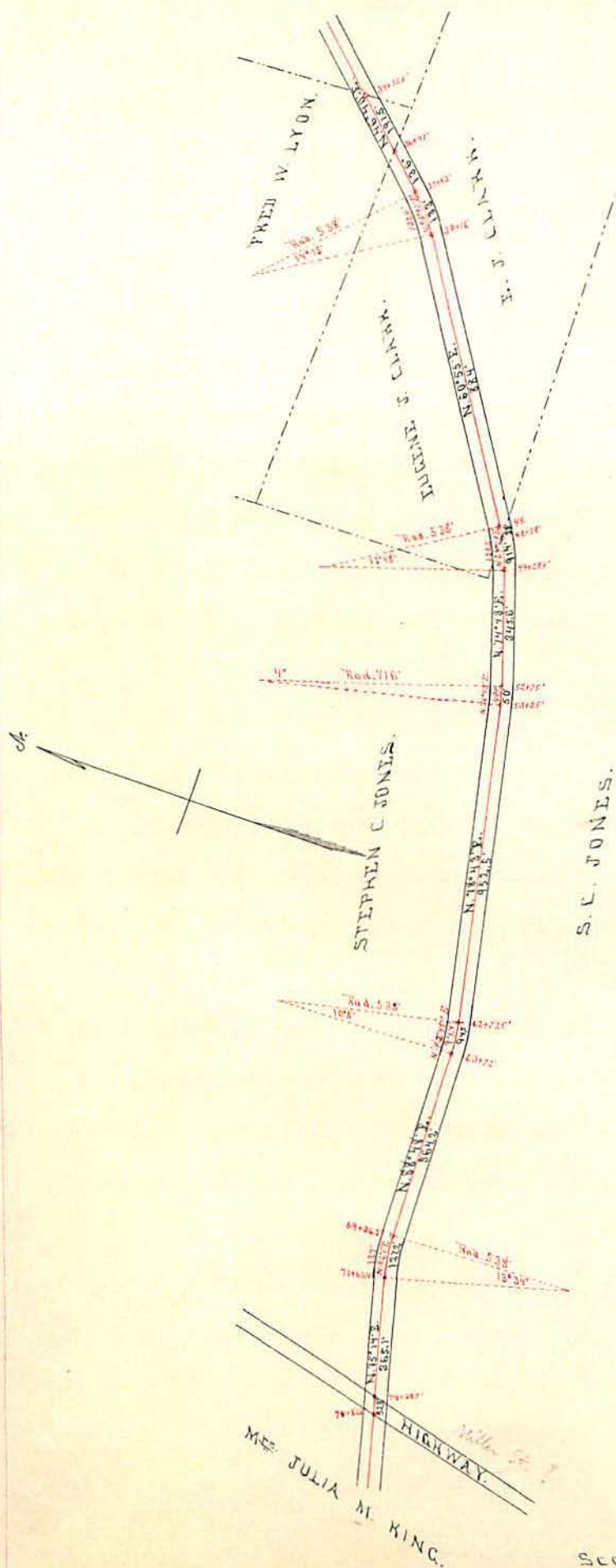
*Fred. W.  
Lyon.*

thence on land belonging to the said Lyon S. 46° 40' W. one hundred and ninety-one and five tenths (191.5) feet to station 36 + 47' on said annexed plan, which is on the dividing line between land belonging to the said Lyon and land belonging to Eugene J. Clark.



Eugen  
Clark

Step  
go



Scale, 1 inch = 400 Feet.

Eugene J.  
Clark.

Thence on land belonging to the said Clark S.  $46^{\circ}$   
40' W. one hundred and thirty-six (136) feet to station 37 +  
83' on said annexed plan;

thence on land belonging to the said Clark, on a  
true curve, with a radius of ~~22~~ five hundred and thirty-eight  
(538) feet, one hundred and thirty-three (133) feet to sta-  
tion 39 + 16' on said annexed plan, which is at a point S.  
 $53^{\circ} 47'$  W. one hundred and thirty-two and four tenths (132.4)  
feet from station 37 + 83' on said annexed plan;

thence on land belonging to the said Clark, on a  
straight line, tangent to the preceding curve, S.  $60^{\circ} 55'$  W.  
eight hundred and eighty-four (884) feet to station 48. on  
said annexed plan;

thence on land belonging to the said Clark, on a  
true curve, with a radius of five hundred and thirty-eight  
(538) feet, thirty-eight (38) feet to station 48 + 38' on  
said annexed plan, which is on the dividing line between land  
belonging to the said Clark and land belonging to Stephen C.  
Jones;

Stephen C.  
Jones.

thence on land belonging to the said Jones in a  
continuation of said curve, ninety-one and four tenths (91.4)  
feet to station 49 + 29.4' on said annexed plan, which is at  
a point S.  $67^{\circ} 49'$  W. one hundred and two tenths (129.2) feet  
from said station 48 on said annexed plan;

thence on land belonging to the said Jones, in a  
straight line, tangent to the preceding curve, S.  $74^{\circ} 43'$  W.  
three hundred and forty-five and six tenths (345.6) feet to  
station 52 + 75' on said annexed plan;

thence on land belonging to the said Jones, on a  
true curve, with a radius of seven hundred and sixteen (716)



feet, fifty (50) feet to station 53 + 25' on said annexed plan, which is at a point S. 76° 43' W. forty-nine and nine tenths (49.9) feet from said station 52 + 75' on said annexed plan;

thence on land belonging to the said Jones, in a straight line, tangent to the preceding curve, S. 78° 43' W. nine hundred and fifty-two and five tenths (952.5) feet to station 62 + 77.5' on said annexed plan.

thence on land belonging to the said Jones, on a true curve, with a radius of five hundred and thirty-eight (538) feet, ninety-four and five tenths (94.5) feet to station 63 + 72' on said annexed plan, which is at a point S. 83° 45' W. ninety-four and four tenths (94.4) feet from station 62 + 77.5' on said annexed plan;

thence on land belonging to the said Jones, in a straight line tangent to the preceding curve, S. 88° 48' W. five hundred and sixty-four and two tenths (564.2) feet to station 69 + 36.2' on said annexed plan;

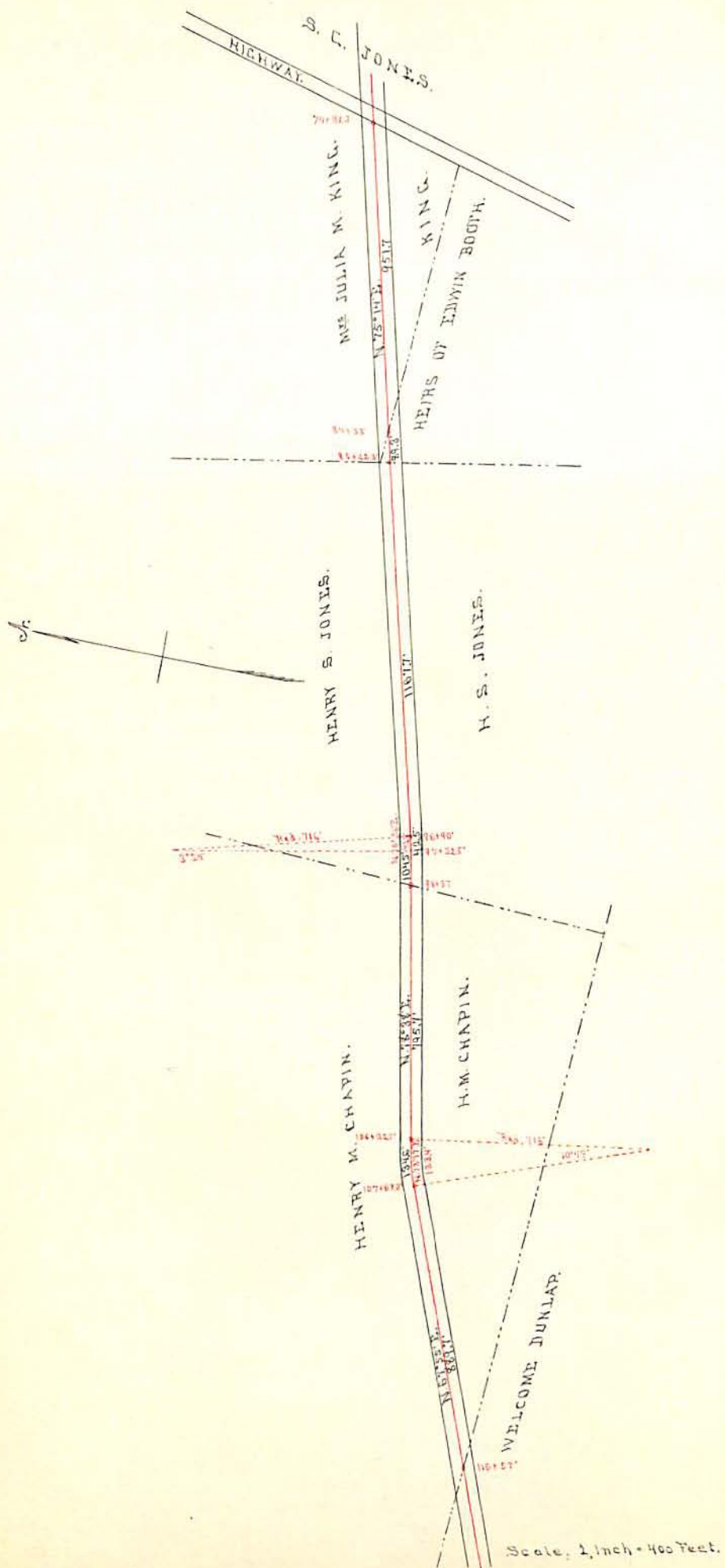
thence on land belonging to the said Jones, on a true curve, with a radius of five hundred and thirty-eight (538) feet, one hundred and twenty-seven and two tenths (127.2) feet to station 70 + 63.4' on said annexed plan, which is at a point S. 82° 1' W. one hundred and twenty-seven (127) feet from station 69 + 36.2' on said annexed plan;

thence on land belonging to the said Jones, in a straight line, tangent to the preceding curve, S. 75° 14' W. three hundred and sixty-five and one tenth (365.1) feet to station 74 + 28.5' on said annexed plan, which is at the easterly side of a highway leading from North Wilbraham to Ludlow Center;

*Highway.*

thence crossing said highway S.  $75^{\circ} 14'$  W. fifty-two and eight tenths (52.8) feet to station 74+ 81.3' on said annexed plan, which is at a point on the westerly side of said highway;







Julia M.  
King

Thence on land of Mrs. Julia M. King S.  $75^{\circ} 14'$  W. nine hundred and fifty-one and seven tenths (951.7) feet to station 84 + 33' on said annexed plan, which is on the dividing line between land belonging to the said Mrs. King and land belonging to the heirs of the late Edwin Booth;

Heirs of Ed-  
win Booth.

thence on land belonging to the said heirs, S.  $75^{\circ} 14'$  W. eighty-nine and three tenths (89.3) feet to station 85 + 22.3' on said annexed plan, which is on the dividing line between land belonging to the said heirs and land belonging to Henry S. Jones;

Henry S. Jones

thence on land belonging to the said Jones, S.  $75^{\circ} 14'$  W. one thousand one hundred and sixty-seven and seven tenths (1167.7) feet to station 96 + 90' on said annexed plan;

thence on land belonging to the said Jones, on a true curve, with a radius of seven hundred and sixteen (716) feet, forty-two and five tenths (42.5) feet to station 97 + 32.5' on said annexed plan, which is at a point S.  $76^{\circ} 56'$  W. forty-two and four tenths (42.4) feet from station 96 + 90' on said annexed plan;

thence on land belonging to the said Jones, in a straight line, tangent to the preceding curve, S.  $78^{\circ} 38'$  W. one hundred and four and five tenths (104.5) feet to station 98 + 37' on said annexed plan, which is on the dividing line between land belonging to the said Jones and land belonging to Henry M. Chapin;

Henry M.  
Chapin.

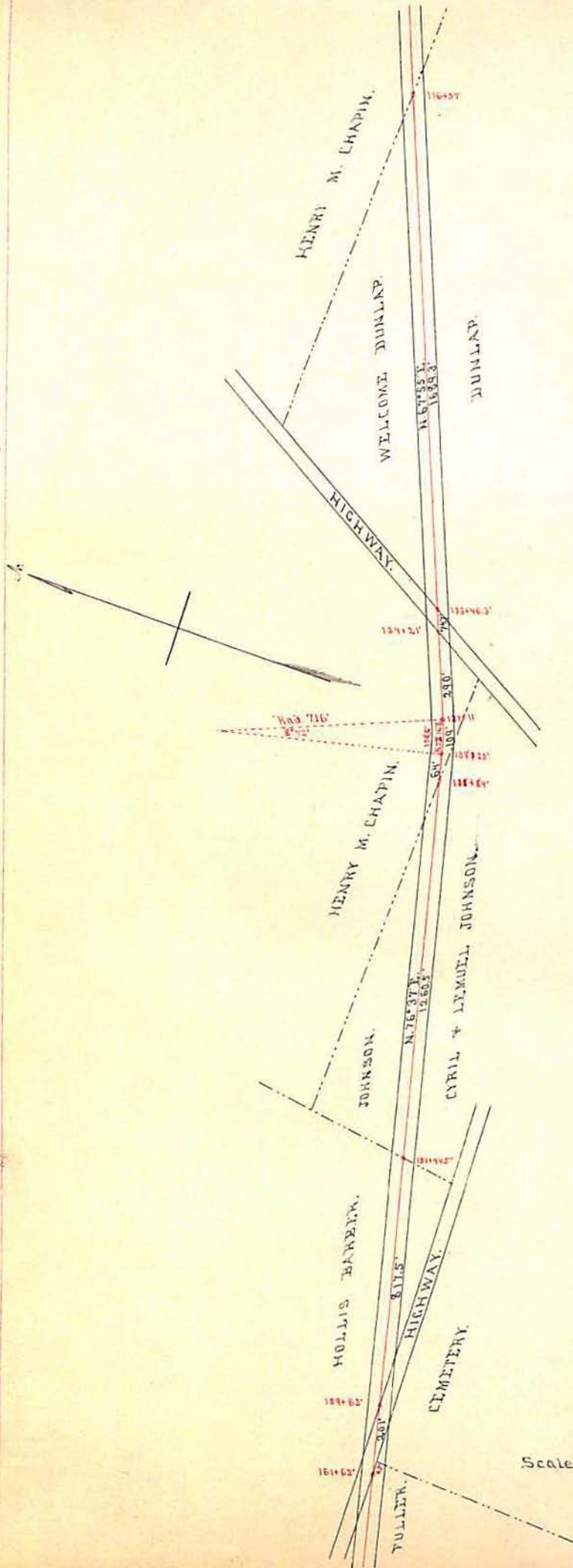
thence on land belonging to the said Chapin S.  $78^{\circ} 38'$  W. seven hundred and ninety-five and seven tenths (795.7) feet to station 106 + 32.7' on said annexed plan;

thence on land belonging to the said Chapin, on a



true curve, with a radius of seven hundred and sixteen (716) feet, one hundred and thirty-four and six tenths (134.6) feet to station 107 + 67.3' on said annexed plan, which is at a point S.  $73^{\circ} 17'$  W. one hundred and thirty-three and four tenths (133.4) from station 106 + 32.7' on said annexed plan;

thence on land belonging to the said Chapin, in a straight line, tangent to the preceding curve, S.  $67^{\circ} 55'$  W. eight hundred and eighty-nine and seven tenths (889.7) feet to station 116 + 57' on said annexed plan, which is on the dividing line between land belonging to the said Chapin and land belonging to Welcome Dunlap;



Scale, 1 inch = 400 Feet.



Welcome  
Dunlap.

14

Thence on land belonging to the said Dunlap, S. 67° 55' W. one thousand six hundred and eighty-nine and three tenths (1689.3) feet to station 133 + 46.3' on said annexed plan, which is on the easterly side of a highway leading from Ludlow Mills to Ludlow Center;

Highway.

thence crossing said highway S. 67° 55' W. seventy-four and seven tenths (74.7) feet to station 134 + 21' on said annexed plan, which is on the westerly side of the said highway;

Henry M.  
Chapin.

thence on land belonging to the said Henry M. Chapin, S. 67° 55' W. two hundred and ninety (290) feet to station 137 + 11' on said annexed plan;

thence on land belonging to the said Chapin, on a true curve, with a radius of seven hundred and sixteen (716) feet, one hundred and nine (109) feet to station 138 + 20' on said annexed plan, which is at a point S. 72° 16' W. one hundred and eight and six tenths (108.6) feet from station 137 + 11' on said annexed plan;

thence on land belonging to the said Chapin, in a straight line, tangent to the preceding curve, S. 76° 37' W. sixty-four (64) feet to station 138 + 84' on said annexed plan, which is the dividing line between land belonging to the said Chapin and land belonging to Cyril and Lemuel Johnson;

Cyril and  
Lemuel  
Johnson.

thence on land belonging to the said Johnsons S. 76° 37' W. one thousand two hundred and sixty and five tenths (1260.5) feet to station 151 + 44.5' on said annexed plan, which is on the dividing line between land belonging to the said Johnsons and land belonging to Hollis Barber;

Hollis Bar-  
ber

thence on land belonging to the said Barber S. 76° 37' W. eight hundred and seventeen and five tenths (817.5)



feet to station 159 + 62' on said annexed plan, which is on the northerly side of a highway;

*Highway*

thence crossing the said highway, S.  $76^{\circ} 37'$  W. two hundred and one (201) feet to station 161 + 63' on said annexed plan, which is at a point on the southerly side of the said highway and is distant six and seven tenths (6.7) feet westerly from the north-westerly corner of the new Cemetery.

*Cemetery*

Near station 161 + 50' on said annexed plan, the location covers a small triangular piece of land belonging to the said new Cemetery, bounded northerly by the said highway, westerly by land belonging to Henry C. Fuller, and southerly by a line parallel to and distant thirty-three (33) feet southerly from the herein described center line of location.







Henry C.  
Fuller.

Thence from station 161 + 63' on said annexed plan, on land belonging to Henry C. Fuller S. 76° 37' W. eight hundred and sixty-seven (867) feet to station 170 + 30' on said annexed plan, which is on the dividing line between land belonging to the said Fuller and land belonging to William A. Miller;

William A.  
Miller.

thence on land belonging to said Miller S. 76° 37' W. six hundred (600) feet to station 176 + 30' on said annexed plan, which is on the easterly side of a highway;

Highway.

thence crossing said highway S. 76 37' W. fifty-five and three tenths (55.3) feet to station 176 + 85.3' on said annexed plan, which is on the westerly side of said highway;

Adelbert  
Bennett.

thence on land belonging to Adelbert Bennet S. 76° 37' W. seventy-six and seven tenths (76.7) feet to station 177 + 62' on said annexed plan, which is on the dividing line between land belonging to the said Bennett and land belonging to David, Louis, Theodore and William Gamash Jr.;

Gamash  
Brothers.

thence on land belonging to the said Gamash Brothers S. 76° 37' W. three hundred and thirty-two (332) feet to station 180 + 94' on said annexed plan, which is on the dividing line between land belonging to the said Gamash Brothers and land belonging to Peter Langrin.

Edmond  
Bliss.

Near station 180 + 94' on said annexed plan, the location covers a small triangular piece of land belonging to Edmond Bliss, bounded northerly by land belonging to the said Gamash Brothers, westerly by land belonging to the said Langrin, and southerly by a line parallel to and distant thirty-three (33) feet southerly from the herein described center line of location.

Thence from station 180 + 94' on said annexed plan,



*Peter Langrin*

on land belonging to the said Peter Langrin S.  $76^{\circ} 37'$  W. seven hundred and seventy-six and six tenths (776.6) feet to station 188 + 70.6' on said annexed plan;

thence on land belonging to the said Langrin, on a true curve, with a radius of five hundred and thirty-eight (538) feet, three hundred and seven and seven tenths (307.7) feet to station 191 + 78.3' on said annexed plan, which is on the easterly side of a highway;

*Highway.*

thence in the said highway, in a continuation of said curve, eleven and seven tenths (11.7) feet to station 191 + 90' on said annexed plan, which is at a point S.  $59^{\circ} 35'$  W. three hundred and fifteen and three tenths (315.3) feet from station 188 + 70.6' on said annexed plan:

thence crossing the said highway, in a straight line, tangent to the preceding curve, S.  $42^{\circ} 32'$  W. fifty (50) feet to station 192 + 40' on said annexed plan, which is on the westerly side of the said highway;

*Cissire Surprenant.*

thence on land belonging to Cissire Surprenant S.  $42^{\circ} 32'$  W. four hundred and eleven (411) feet to station 196 + 51' on said annexed plan;

thence on land belonging to the said Surprenant, on a true curve, with a radius of five hundred and thirty-eight (538) feet, one hundred and nineteen (119) feet to station 197 + 70' on said annexed plan, which is at a point S.  $48^{\circ} 53'$  W. one hundred and eighteen and seven tenths (118.7) feet from station 196 + 51' on said annexed plan;

thence on land belonging to the said Surprenant, in a straight line, tangent to the preceding curve, S.  $55^{\circ} 14'$  W. one hundred and ninety-two (192) feet to station 199 + 62' on said annexed plan, which is on the dividing line be-



tween land belonging to the said Surprenant and land belonging to Patrick Murphy;

*Patrick  
Murphy.*

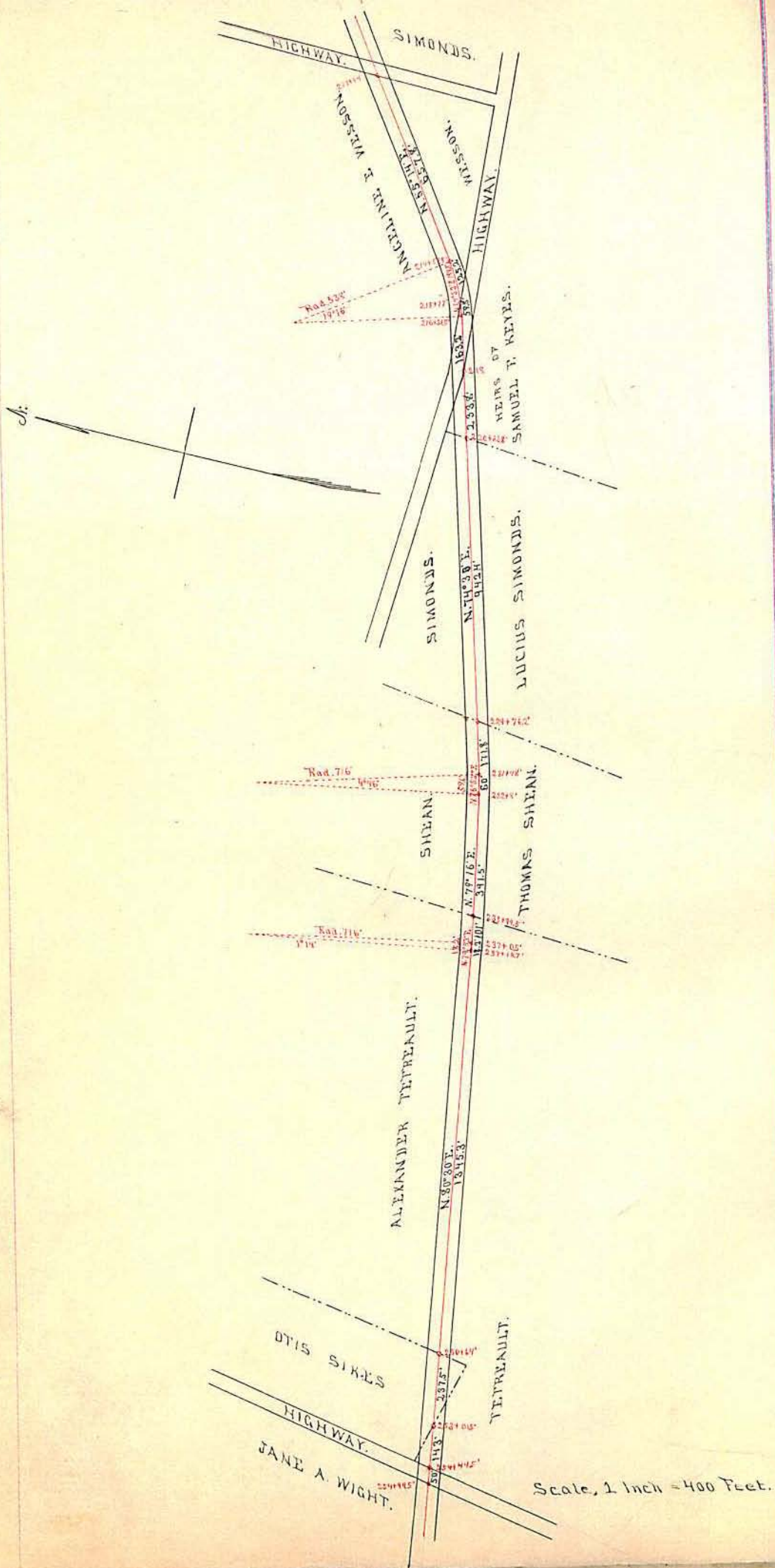
thence on land belonging to the said Murphy S. 55° 14' W. five hundred and eighty-five (585) feet to station 205 + 47' on said annexed plan, which is on the dividing line between land belonging to the said Murphy and land belonging to Lucius Simonds;

*Lucius  
Simonds.*

t thence on land belonging to the said Simonds S. 55° 14' W. one hundred and ninety-seven (197) feet to station 207 + 44' on said annexed plan, which is on the easterly side of a highway;

*Highway*

thence crossing the said highway S. 55° 14' W. fifty (50) feet to station 207 + 94' on said annexed plan, which is on the westerly side of the said highway.





Angeline E.  
Wesson

Thence on land belonging to Angeline E. Wesson S.  $55^{\circ} 14'$  W. six hundred and fifty-seven and eight tenths (657.8) feet to station 214 + 51.8' on said annexed plan;

thence on land belonging to the said Wesson, on a true curve, with a radius of five hundred and thirty-eight (538) feet, one hundred and twenty-five and two tenths (125.2) feet to station 215 + 77' on said annexed plan, which is on the northerly side of a highway;

Highway.

thence in said highway, in a continuation of said curve, fifty-nine and eight tenths (59.8) feet to station 216 + 36.8' on said annexed plan, which is at a point ~~south~~ S.  $64^{\circ} 52'$  W. one hundred and eighty-four and three tenths (184.3) feet from station 214 + 51.8' on said annexed plan;

thence crossing the said highway in a straight line, tangent to the preceding curve S.  $74^{\circ} 30'$  W. one hundred and sixty-three and two tenths (163.2) feet to station 218 on said annexed plan, which is on the southerly side of said highway;

Heirs of  
Samuel F.  
Keyes.

thence on land belonging to the heirs of the late Samuel F. Keyes S.  $74^{\circ} 30'$  W. two hundred and thirty-three and eight tenths (233.8) feet to station 220 + 23.8' on said annexed plan, which is on the dividing line between land belonging to the said heirs and land belonging to the aforesaid Lucius Simonds;

Lucius  
Simonds.

thence on land of the said Simonds S.  $74^{\circ} 30'$  W. nine hundred and forty-two and four tenths (942.4) feet to station 229 + 76.2' on said annexed plan, which is on the dividing line between land belonging to the said Simonds and land belonging to Thomas Shean;

Thomas  
Shean

thence in land belonging to the said Shean S.  $74^{\circ} 30'$  W. one hundred and seventy-one and eight tenths (171.8)



feet to station 231+ 48' on said annexed plan;

thence on land belonging to the said Shean, on a true curve, with a radius of seven hundred and sixteen (716) feet sixty (60) feet to station 232+ 8' on said annexed plan, which is at a point ~~20222~~ S. 76° 53' W. fifty-nine and six tenths (59.6) feet from station 231+ 48' on said annexed plan;

thence on land of the said Shean, in a straight line, tangent to the preceding curve, S. 79° 16' W. three hundred and ninety-one and five tenths (391.5) feet to station 235+ 99.5' on said annexed plan, which is on the dividing line between land belonging to the said Shean and land belonging to Alexander Tetreault;

*Alexander  
Tetreault.*

thence on land belonging to the said Tetreault, S. 79° 16' W. one hundred and one (101) feet to station 237+ .005' on said annexed plan;

thence on land belonging to the said Tetreault, on a true curve, with a radius of seven hundred and sixteen (716) feet, eighteen and two tenths (18.2) feet to station 237+ 18.7' on said annexed plan, which is at a point S. 79° 53' W. eighteen and two tenths (18.2) feet from station 237+ .005' on said annexed plan;

thence on land belonging to the said Tetreault, in a straight line, tangent to the preceding curve, S. 80° 30' W. one thousand three hundred and forty-five and three tenths ( 1345.3) feet to station 250+ 64' on said annexed plan, which is on the dividing line between land belonging to the said Tetreault and land belonging to Otis Sikes;

*Otis Sikes*

thence on land belonging to the said Otis Sikes S. 80° 30' W. two hundred and thirty-seven and five tenths



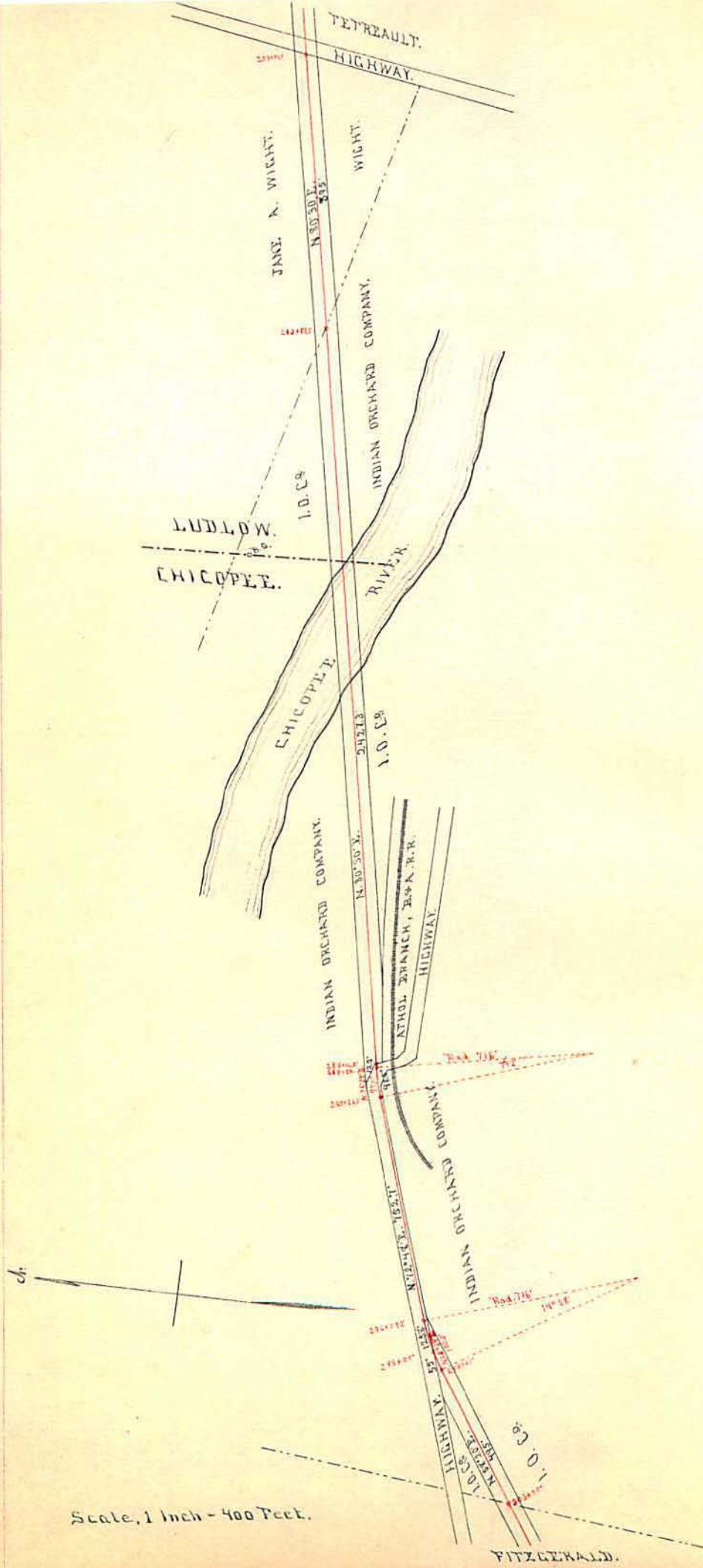
(237.5) feet to station 253 + 01.5' on said annexed plan,  
which is on the dividing line between land belonging to the  
said Sikes and land belonging aforesaid Alexander Tetreault;

*Alexander  
Tetreault.*

thence on land belonging to the said Tetreault S.  
80° 30' W. one hundred and forty-three (143) feet to station  
254 + 44.5' on said annexed plan, which is on the easterly  
side of a highway;

*Highway.*

thence crossing the said highway S. 80° 30' W.  
fifty (50) feet to station 54 + 94.5' on said annexed plan,  
which is on the westerly side of the said highway;





Jane A. Wight.

Thence on land belonging to Jane A. Wight S. 80° 30' W. eight hundred and ninety-five (895) feet to station 263 + 89.5' on said annexed plan, which is on the dividing line between land belonging to the said Wight and land belonging to the Indian Orchard Company;

Indian Orchard Co.

thence on land belonging to the said Company, S. 80° 30' W. crossing the division line between the Town of Ludlow and the City of Chicopee, and crossing the Chicopee River two thousand four hundred and twenty-seven and three tenths (2427.3) feet to station 288 + 16.8' on said annexed plan, which is on the north-easterly side of the highway leading from Indian Orchard to Chicopee Falls.

From station 285 + 50' on said annexed plan to station 288 + 16.8' on said annexed plan the northerly line of the location of the Athol Branch of the Boston and Albany Railroad is also the southerly line of this location.

The width of the location, on the southerly side of the herein described center line of location, decreases from thirty-three (33) feet at station 285 + 50' on said annexed plan, to twenty (20) feet at station 288 + 16.8' on said annexed plan.

The northerly line of this location continues westerly, parallel to and distant thirty-three (33) feet from the herein described center line of location, to a point opposite station 288 + 77.7' on said annexed plan.

From station 288 + 77.7' on said annexed plan, to station 296 + 80' on said annexed plan, this location lies entirely within the limits of the said highway leading from Indian Orchard to Chicopee Falls.

Highway

Thence from the said station 288 + 16.8' on said annexed plan in the said highway, S. 80° 30' W. twelve and



two tenths (12.2) feet to station 288 + 29' on said annexed plan;

thence in the said highway, on a true curve, with a radius of seven hundred and sixteen (716) feet, ninety-seven and five tenths (97.5) feet to station 289 + 26.5' on said annexed plan, which is at a point S. 76° 39' W. ninety-seven and four tenths (97.4) feet from the said station 288 + 29' on said annexed plan;

thence in the said highway in a straight line tangent to the preceding curve, S. 72° 48' W. seven hundred and fifty-two and seven tenths (752.7) feet to station 296 + 79.2' on said annexed plan;

thence in the said highway, on a true curve, with a radius of seven hundred and sixteen (716) feet, one hundred and twenty-five and eight tenths (125.8) feet to station 298 + 05' on said annexed plan, which is on the southerly side of the said highway;

thence on land belonging to the aforesaid Indian Orchard Company, in a continuation of said curve, fifty-five (55) feet to station 298 + 60' on said annexed plan, which is at a point S. 65° 34' W. one hundred and eighty and three tenths (180.3) feet from station 296 + 79.2' on said annexed plan.

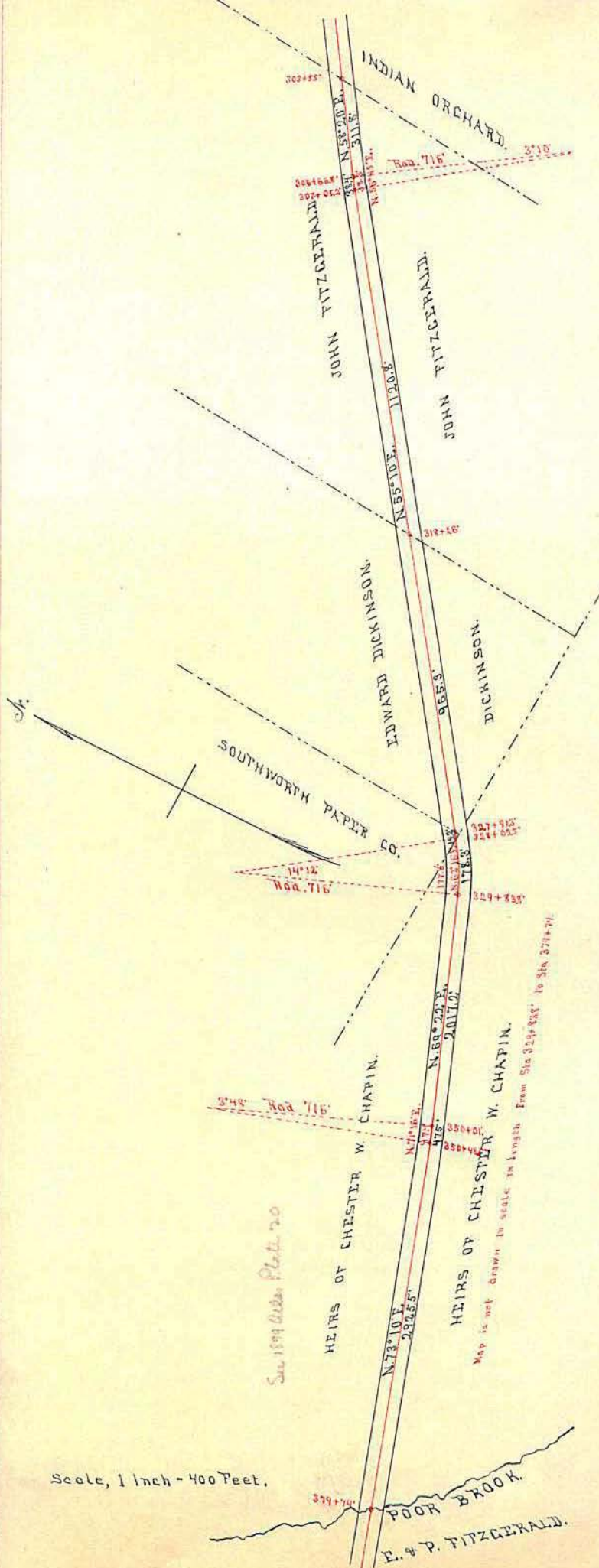
The southerly side of this location from a point nearly opposite station 296 + 80' to a point opposite station 298 + 60' is bounded by a line starting from a point S. 31° 40' E. thirty-three (33) feet from station 298 + 60' and thence running N. 58° 20' E. until it intersects the southerly line of the said highway nearly opposite station 296 + 80'.

Thence from the said station 298 + 60' on said annexed plan, on land belonging to the aforesaid Indian Orchard

*Indian Or-  
chard Co.*



Company in a straight line tangent to the preceding curve,  
S. 58° 20' W. four hundred and ninety-five (495) feet to  
station 303 + 55' on said annexed plan, which is on the di-  
viding line between land belonging to the said Company and  
land belonging to John Fitzgerald;



Scale, 1 inch = 400 Feet.

Map is not drawn to scale in length  
From Sta 329+285' to Sta 379+74'

See 1899 Atlas Plate 20



*John Fitz-  
gerald*

Thence on land belonging to the said Fitzgerald  
S. 58° 20' W. three hundred and eleven and eight tenths  
(311.8) feet to station 306 + 66.8' on said annexed plan;

thence on land belonging to the said Fitzgerald,  
on a true curve, with a radius of seven hundred and sixteen  
(716) feet, thirty-eight and four tenths (38.4) feet to  
station 307 + 05.2' on said annexed plan, which is at a point  
S. 56° 45' W. thirty-eight and three tenths (38.3) feet from  
station 306 + 66.8' on said annexed plan;

thence on land belonging to the said Fitzgerald,  
tangent  
on a straight line to the preceding curve, S. 55° 10' W.  
one thousand one hundred and twenty and eight tenths (1120.8)  
feet to station 318 + 26' on said annexed plan, which is on  
the dividing line between land belonging to the said Fitz-  
gerald and land belonging to Edward Dickinson;

*Edward  
Dickinson*

thence on land belonging to the said Dickinson S.  
55° 10' W. nine hundred and sixty-five and three tenths  
(965.3) feet to station 327 + 91.3' on said annexed plan,  
which is on the dividing line between land belonging to the  
said Dickinson and land belonging to the Southworth Paper  
Company;

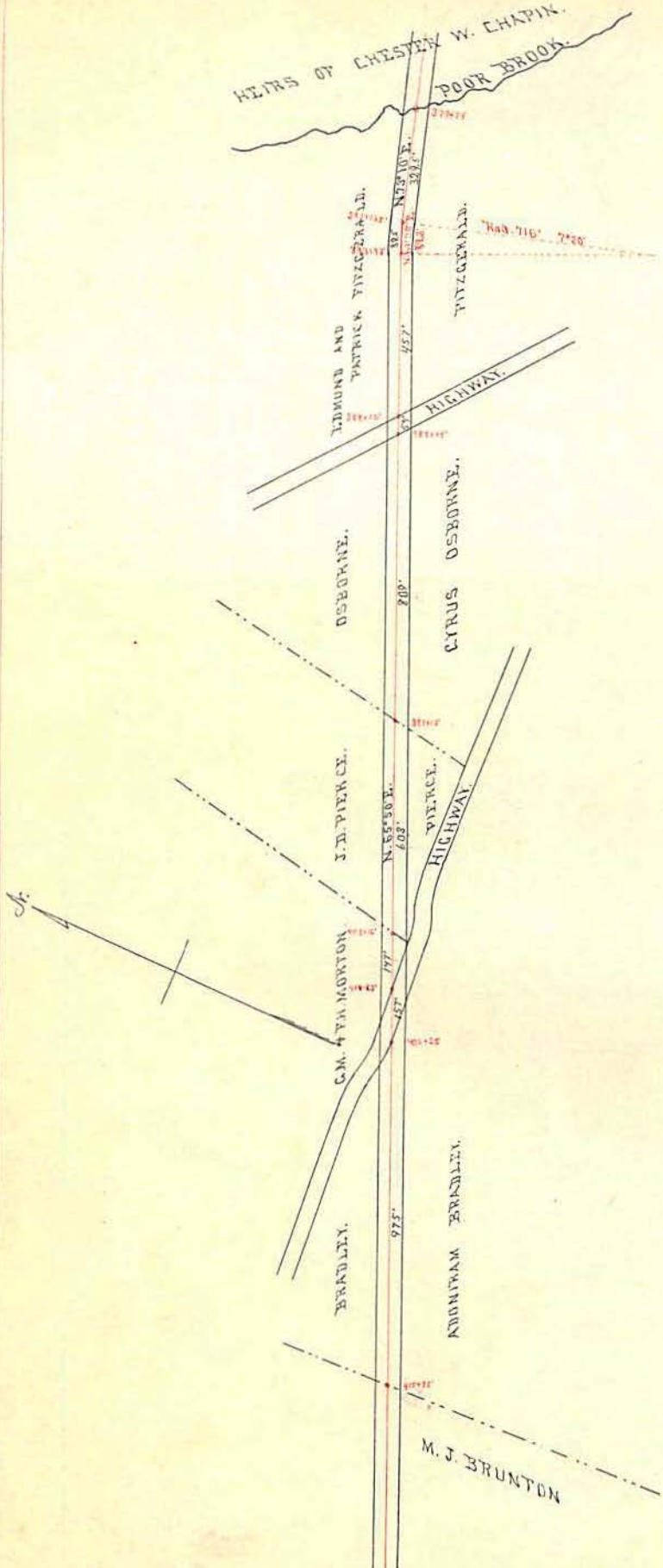
*Southworth  
Paper Co*

thence on land of the said Company S. 55° 10' W.  
fourteen and two tenths (14.2) feet to station 328 + 05.5'  
on said annexed plan, which is on the dividing line between  
land belonging to the said Company and land belonging to the  
heirs of the late Chester W. Chapin;

*Heirs of  
Chester W.  
Chapin.*

thence on land of the said heirs, on a true curve,  
with a radius of seven hundred and sixteen (716) feet, one  
hundred and seventy-eight and three tenths (178.3) feet to  
station 329 + 83.8' on said annexed plan, which is at a point  
S. 62° 16' W. one hundred and seventy-seven and eight tenths





(77.8) feet from station 328 + 05.5' on said annexed plan;

thence on land belonging to the said heirs in a straight line tangent to the preceding curve, S. 69° 22' W. two thousand and seventeen and two tenths (2017.2) feet to station 350 + 01' on said annexed plan;

thence on land belonging to the said heirs, on a true curve, with a radius of seven hundred and sixteen (716) feet, forty-seven and five tenths (47.5) feet to station 350 + 48.5' on said annexed plan, which is at a point S. 71° 16' W. forty-seven and four tenths (47.4) feet from said station 350 + 01' on said annexed plan;

thence on land belonging to the said heirs, in a straight line, tangent to the preceding curve, S. 73° 10' W. two thousand nine hundred and twenty-five and five tenths (2925.5) feet to station 379 + 74' on said annexed plan, which is in the center of Poor Brook so called, said brook being the dividing line between land belonging to the said heirs and land belonging to Edmund and Patrick Fitzgerald;

thence on land belonging to the said Fitzgeralds S. 73° 10' W. three hundred and twenty-nine and six tenths (329.6) feet to station 383 + 03.5' on said annexed plan;

thence on land belonging to the said Fitzgeralds, in a true curve, with a radius of seven hundred and sixteen (716) feet, eighty-nine and five tenths (89.5) feet to station 383 + 93' on said annexed plan, which is at a point S. 69° 30' W. eighty-nine and three tenths (89.3) feet from said station 383 + 03.5' on said annexed plan;

thence in a straight line tangent to the preceding curve, on land belonging to the said Fitzgeralds, S. 65° 50' W. four hundred and fifty-seven (457) feet to station 388 + 50' on said annexed plan, which is on the north-easterly

*Edmund &  
Patrick  
Fitzgerald*



side of a highway;

thence crossing said highway S. 65° 50' W. fifty-four (54) feet to station 399 + 04' on said annexed plan, which is on the south-westerly side of said highway;

*Cyrus  
Osborne.*

thence on land belonging to Cyrus Osborne S. 65° 50' W. eight hundred and nine (809) feet to station 397 + 13' on said annexed plan, which is on the division line between land belonging to the said Osborne and land belonging to J.D.Pierce;

*J.D. Pierce*

thence on land belonging to the said Pierce S. 65° 50' W. six hundred and three (603) feet to station 403 + 16' on said annexed plan, which is on the dividing line between land belonging to the said Pierce and land belonging to G.M. & F.H. Morton;

*G.M. & F.H.  
Morton.*

thence on land belonging to the said Mortons S. 65° 50' W. one hundred and forty-seven (147) feet to station 404 + 63' on said annexed plan, which is on the northerly side of the Poor Brock Road so called;

*Highway.*

thence crossing the said Road S. 65° 50' W. one hundred and fifty-seven (157) feet to station 406 + 20' on said annexed plan, which is on the southerly side of the said road;

*Adoniram  
Bradley.*

thence on land belonging to Adoniram Bradley S. 65° 50' W. nine hundred and seventy-five (975) feet to station 415 + 95' on said annexed plan, which is on the dividing line between land belonging to the said Bradley and land belonging to M.J. Brunton;

*M.J. Brun-  
ton.*

thence on land belonging to the said Brunton S. 65° 50' W. one thousand one hundred and ninety-one (1191) feet to station 427 + 86' on said annexed poan, which is on the





dividing line between land belonging to the said Brunton and land belonging to Thomas King;

*Thomas King.*

thence on land belonging to the said King S. 65° 50' W. one thousand five hundred and twenty-five and two tenths (1525.2) feet to station 443 + 11.2' on said annexed plan, which is on the north-easterly side of Saint James Avenue;

*St. James Avenue.*

thence crossing the said Avenue S. 65° 50' W. fifty-nine (59) feet to station 443 + 70.2' on said annexed plan, which is on the south-westerly side of the said Avenue;

*John Howell.*

thence on land belonging to John Howell, on a true curve, with a radius of seven hundred and sixteen (716) feet, sixty-five and eight tenths (65.8) feet to station 444 + 36' on said annexed plan, which is at a point S. 63° 13' W. sixty-five and six tenths (65.6) feet from the said station 443 + 70.2';

thence on land belonging to the said Howell, in a straight line tangent to the preceding curve S. 60° 35' W. one hundred and eighty-two and five tenths (182.5) feet to station 446 + 18.5' on said annexed poan, which is on the dividing line between land belonging to the said Howell and land belonging to the aforesaid Thomas King;

*Thomas King.*

thence on land belonging to the said King S. 60° 35' W. sixty-two and five tenths (62.5) feet to station 446 + 81' on said annexed plan, which is on the dividing line between land belonging to the said King and land belonging to Charles Shaw;

*Charles Shaw.*

thence on land belonging to the said Shaw S. 60° 35' W. three hundred and nineteen (319) feet to station 450 on said annexed plan, which is on the southerly side of Carew Street and at the end of this location.



From the said station 450 the line of pipe is laid in Carew Street to the corner of Main Street in said said City of Springfield.

In the foregoing location the right of way is taken over lands of the following areas.

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Lovinski F.White . . . . .	3 acres,	13.8 sq. rods.
Otis Sikes (station 6 +.50) . .		12.6 " "
Danford W.Sikes . . . . .	1 "	24.4 " "
Fred W.Lyon . . . . .		46.3 " "
Eugene J.Clark . . . . .	1 "	128.9 " "
Stephen C.Jones . . . . .	3 "	148. " "
Mrs.Julia M.King . . . . .	1 "	70.5 " "
Heirs of Edwin Booth . . . .		21.8 " "
✓ Henry S.Jones . . . . .	1 "	158.7 " "
Henry M.Chapin (station 106) .	2 "	121.2 " "
Welcome Dunlap . . . . .	2 "	89.5 " "
Henry M.Chapin (station 137)		112.2 " "
Cyril and Lemuel Johnson . .	1 "	145.5 " "
Hollis Barber . . . . .	1 "	38.2 " "
Cemetery . . . . .		9.1 " "
Henry C.Fuller . . . . .	1 "	50.1 " "
William A.Miller . . . . .		145.4 " "
Adelbert Bennett . . . . .		19.9 " "
Gamash Brothers . . . . .		77.1 " "
Edmond Bliss . . . . .		1.9 " "
Peter Langrin . . . . .	1 "	102.8 " "
Cissire Surprenant . . . . .	1 "	15. " "
Patrick Murphy . . . . .		141.8 " "
Lucius Simonds (station 206)		47.7 " "
Angeline E.Wesson . . . . .	1 "	29.8 " "
Heirs of Samuel F.Keyes . . .		56.7 " "



Lucius Simonds (station 225)	1 acre	68.4 sq. rods.
Thomas Shean . . . . .		151.1 " "
Alexander Tetreault (station 240)	2 "	35. " "
Otis Sikes (station 252) . . .		57.5 " "
Alexander Tetreault (station 254)		34.6 " "
Jane A. Wight . . . . .	1 "	56.9 " "
Indian Orchard Company, (Station 275)	3 "	106.3 " "
Indian Orchard Company, (station 300)	. .	133.3 " "
John Fitzgerald . . . . .	2 "	36.6 " "
Edward Dickinson . . . . .	1 "	71. " "
Southworth Paper Company . . .		6.4 " "
Heirs of Chester W. Chapin . .	7 "	132.9 " "
Edmund and Patrick Fitzgerald	1 "	52.4 " "
Cyrus Osborne . . . . .	1 "	35.8 " "
J.D. Pierce . . . . .		146.2 " "
G.M. & F.H. Morton . . . . .		35.7 " "
Adoniram Bradley . . . . .	1 "	76.3 " "
M.J. Brunton . . . . .	1 "	128.7 " "
Thomas King (station 435) . .	2 "	49.7 " "
John Howell . . . . .		60.1 " "
Thomas King (station 446 + 50)		15.1 " "
Charles Shaw . . . . .		77.3 " "

April 26<sup>th</sup> 1893.

C. L. Goodhue  
R. D. Hawkins  
E. P. Kendrick

Board of  
 Water  
 Commissioners,  
 Springfield, Mass.

## Tolland Dam Inspections - 1956 - 1970



### 1956 Reports

#### Inspections by Tighe & Bond.

City/Town

Tolland

Dam

Anderson Dam

Dam

Chamonix Chalet Properties Dam

Dam

Tunxis Trout Pond Dam

Dam

Tunxis Club New Trout Pond Dam

Dam

Tunxis Club Penstock Dam

Dam

Noyes Pond Dam

Dam

Victory Lake Dam

Dam

Newell Dam

Dam

Connecticut Valley Girl Scouts Dam

Dam

Lost Wilderness Dam

Dam

Richmond Dam

Dam

Tunxis Club Intake Dam

Dam

Lost Wilderness Ranch Dam

Dam

Deerning Dam

Dam

Camp Wynbrooke Dam

Dam

Noyes Pond Dam

Dam

Preston Dam

Dam	Spruce Hill Camp Dam
Water	Ripley Brook
Water	Trout Pond
Water	Farmington River
Water	Hubbard Brook
Water	Babcock Brook
Water	Noyes Pond
Water	Victory Lake
Water	Twining Pond

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
GEORGE H. McDONNELL  
PHILIP W. SHERIDAN

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

CD-Hampden

Nov. 9, 1956

The Hon. the Board of County Commissioners  
Hampden County Court House  
Elm Street  
Springfield, Massachusetts

Gentlemen:

Recent inspections of dams, in the Town of Tolland, have now completed the inspection routine in this community and all dams have been examined once or more times during 1956. The following is a report on the condition of the various dams in the Town of Tolland:

A. Anderson Dam. This dam was located on the west branch of the Farmington River at a point about midway between New Boston and the Connecticut State Line. This dam has been breached for many years and no water has been backed up by the structure in the Farmington River. The site is inspected annually to be certain that conditions at this dam are not changed to result in the ponding of water.

B. Richmond Dam. The Richmond dam is an earth structure with a concrete overflow spillway. It is situated on Wards Pond just upstream from East Otis Road. During the flood of August 1955, two slight washouts of the earthen embankment occurred. These washouts were not serious. The location of the washouts is left of the spillway and on the left portion of the embankment itself. These washouts have not been completely repaired and the Owner should be instructed to fill the washouts with well compacted earth. Flashboards on this dam should be removed in the Fall, each year, and not replaced until the following Spring.

C. H. E. Newell Dam. This dam is located adjacent to New Boston Road, Highway Route 57 and is on the brook that drains from Twining Pond. During the flood of August 1955, the dam and the road downstream of the dam was topped by flood water. The road was washed out but the dam held. This dam is in good condition and is satisfactory.

D. Lost Wilderness Ranch Dam. This dam is situated on Twining Pond just to the rear of the Lost Wilderness Ranch property on East Otis Road. During the flood of August 1955, the dam was topped by about 12-inches of water and the earth

embankment was washed thru in the center portion. This wash-out is deep and quite wide. As the result, very little water is now stored at this site. The Owner should be notified that the breach thru the dam should not be plugged and the dam repaired until Plans and Specifications of the repairs and of a new spillway are filed and approved.

E. Deeming Dam. This is a very shallow earth and boulder dam located on Trout Pond just south of New Boston Road, in the westerly portion of Tolland. The dam withstood the flood of August 1955 and is in relatively good condition.

F. Camp Wymbrooke Dam. This dam is located on Victory Lake. It is in the southern portion of Tolland near Colebrook River Road. It is an earthen structure with an overflow spillway near the left abutment area. This dam was raised and strengthened a few years ago and as a result of this improvement the structure withstood the flood of August 1955. The dam is in satisfactory condition.

G. Noyes Pond Dam. This is a small boulder, earth and masonry dam situated at the eastern end of Noyes Pond on the property of the Tunxis Club near Clubhouse Road. In the flood of August 1955 the dam was topped but because of its masonry construction and boulder content no damage occurred to the dam. When last inspected the stop logs in the spillway had been removed and the pond was drawn down to its low level. This dam is satisfactory.

H. Tunxis Club Intake & Penstock Dam. This dam has been abandoned and no longer ponds water. The Structure has been abandoned for years and was not damaged in the flood of 1955.

I. Tunxis Club New Trout Dam. This dam was completed just prior to the flood of August 1955. The structure withstood the flood satisfactorily except for a washout of earth around the south end of the structure in natural soil. This washout has been plugged and a substantial high dike constructed to prevent a recurrence of this condition. The dam was satisfactory when last inspected on Oct. 24, 1956.

J. Tunxis Club Trout Pond Dam. This dam is located on Trout Pond. The dam is on Pond Brook and this brook drains to Babcock Brook thence to Hubbard Brook and into Connecticut just above Barkhamsted Reservoir. The dam is composed of logs, treated planking, earth and boulders. It has a wooden overflow and a swale spillway at the right end. During the flood of August 1955 the dam was topped by about one foot of water. The earth portion of the dam was washed out in three separate places but the planking, timbers and logs on the upstream face of the dam held and to this day still retain the pond. No work has been done to repair this dam. The structure is not safe in its present condition and though there is very little danger of sudden failure, the dam should be either repaired properly and the spillway enlarged or the dam should be breached and abandoned.



K. Preston Dam. This dam is situated on Ripley Brook just westerly of Amos Case Road. It is an earthen structure with a spillway near the right portion of the embankment. It is relatively high and when in good condition formed a reasonably large private pond used for recreational purposes. Its present owner is a Mr. Garrett of New York City. During the flood of August 1955 the earth embankment was washed thru just to the left of the masonry spillway. This breach still exists and no pond is formed at the present time. The breach is deep and wide and allows for the free flow of the brook. The owner should be notified that no repairs to the dam are to be made until Plans and Specifications of the repairs are prepared, filed and approved.

In summary, of the eleven dams and dam sites in Tolland, two dams were washed thru in August 1955, and no longer pond any water of consequence, one, Trout Pond Dam, was seriously damaged but still forms a pond while two dams received minor damage and have been repaired, in part.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
**CONSULTING ENGINEERS**  
**BOWERS AND PEQUOT STREETS**  
**HOLYOKE, MASSACHUSETTS**  
**TEL. JEFFERSON 3-3991**  
**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

CD - Tolland  
Sept. 16, 1957

The Hon. the Board of County Commissioners  
Hampden County Court House  
Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspections in the Town of Tolland have now completed the inspection routine in this community and all dams have been examined one or more times during 1957. The following is a report on the conditions of the various dams situated in the town of Tolland.

A. Anderson Dam

There has been no dam at this site for many years. The site is inspected annually and no work has ever been done in connection with any restoration of this dam. It is doubtful if a dam will ever be rebuilt at the site of the old Anderson Dam.

B. Richmond Dam

This dam was found to be in fair condition. Leakage is taking place under the left section of the spillway structure. This leakage could probably be stopped somewhat by dumping fines or ashes on the upstream side in the pond where the surface of the earth fill has settled and where there is evidence of water entering the dam to emerge downstream as leakage. This condition is not serious but the owner of the dam could be advised of the condition and the method for stopping the leakage.

C. H. E. Newell Dam

This dam was found to be in satisfactory condition.

D. Lost Wilderness Ranch Dam

This dam has not been changed or altered in any manner since it was breached by the flood of August 1955. No pond is formed and a wide waterway is available thru the earth embankment of the dam for the passage of the stream flow. Conditions at the site of this breached dam are satisfactory.

E. Deeming Dam

This dam was found to be in satisfactory condition. It is a very shallow earth and boulder dam impounding a small pond. Even

if this dam did become dilapidated and even if it did washout, it would do no damage to persons and property downstream.

F. Camp Spruce Hill Dam (Formerly Wynbrooke at Victory Lake)

The wooden covering over the spillway structure has been removed. The spillway structure should be left free of a covering that will restrict the overflow of flood waters. Logs, wood and miscellaneous debris in the spillway channel should be removed. It is recommended that the owner be notified of this condition.

G. Noyes Pond Dam

This dam was found to be in satisfactory condition. The emergency spillway at the left portion of the dam should be cleared out of all logs and miscellaneous debris as well as any brush growth that clogs the spillway and will act as a hindrance to the passage of flood flows. It is recommended that the owner be notified of this condition.

H. Tunxis Club Intake and Penstock Dam

This structure is somewhat dilapidated and abandoned. It no longer ponds water and the structure presents no danger to persons and property downstream.

I. Tunxis Club New Trout Pond Dam

Some compacted earth fill is needed at the back of each masonry abutment wall. This condition is particularly evident at the right end of the concrete section. Fish screens in the spillway of this dam should be removed before the Fall rainy season sets in. Otherwise the dam was found to be in satisfactory condition. It is recommended that the owner be notified of the maintenance needed at the dam and that the fish screens be removed.

J. Tunxis Club Trout Pond Dam

This dam was damaged considerably in the flood of August 1955. The dam is now under repair and all flood washed holes in the earth embankment have been filled. A new spillway chute is being constructed of planks across the top of the dam and this chute is about the same size and design as the old main spillway. There is a possibility of leakage under the planks of the spillway and it is the opinion of the undersigned that greater spillway capacity should be provided. It is recommended that the owner of the dam be notified to file plans and specifications of the proposed new construction and that spillway capacity should be ample for anticipated storm runoffs. Also, any fish screens to be installed at this dam should not be installed until the design of the screen is approved by your Board.

K. Preston Dam This dam remains in the same condition as has existed since the flood of Aug. 1955. The dam is breached and a free waterway exists for the passage of flood flows. Conditions as noted when last inspected show the dam to be satisfactory.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "G. H. McDonnell", written over a horizontal line.

George H. McDonnell  
County Hydraulic Engineer

GHM/f

WATER SUPPLY  
SEWERAGE  
SEWAGE DISPOSAL  
STRUCTURAL ENGINEERING  
ELECTRICAL ENGINEERING

**TIGHE & BOND, Inc.**  
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**TEL. JEFFERSON 3-3991**  
**GEORGE H. McDONNELL**  
**PHILIP W. SHERIDAN**

DAMS & POWER INSTALLATIONS  
HIGHWAYS & BRIDGES  
HOUSING DEVELOPMENT  
WASTE DISPOSAL

CD Tolland  
Oct. 2, 1958

The Hon. the Board of County Commissioners  
Hampden County Court House  
Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspections carried on in the Town of Tolland have now completed the inspection routine in this community and all dams have been examined one or more times during 1958. The following is a report on the condition of the various dams situated in the Town of Tolland.

A. Anderson Dam

This was a dam situated on the Farmington River at a point south of New Boston. The dam was destroyed many years ago and only the remnants have been observed in recent years. So little of the dam now remains that a person passing the site would not recognize it as a location of a former dam. A free waterway exists for the passage of storm flows and there seems to be no further reason for examining this site in the future. Any dam to be built here would be a major structure and consequently, there is little or no chance that any work would ever be done at a dam on this site without first obtaining proper approval. No further annual inspections will be made at the site of the old Anderson Dam.

B. Richmond Dam

Brush and tree growth on the dam and particularly at the toe of the downstream face to the left of the spillway should be cut and removed. At the time of the last inspection, there was a considerable quantity of water flowing over the spillway and thus, leakage reported last year under the left section of the spillway structure could not be checked for comparison purposes. The dam and spillway in general were found to be in fairly good condition. Certain areas of fill on the dam to the left of the spillway seemed soft. These areas should be compacted and any settlement corrected by the placing of additional compacted fill.

C. H. E. Newell Dam

This dam was found to be in good condition.

D. Lost Wilderness Ranch Dam

Conditions at this dam are the same as reported last year. The breach caused by the flood of August, 1955, is wide open and is large enough to allow the free flow of the stream without impounding any large amount of water. The pond that is formed is but a foot or two in depth and conditions at the site of the breached dam were found to be satisfactory from a safety viewpoint.

E. Deeming Dam

This small dam was found to be in fairly good condition. The wooden box spillway chute is satisfactory.

F. Camp Spruce Hill Dam (Victory Lake)

The earth embankment of this dam was found to be in good condition. The masonry spillway structure is free of the old wooden platform formerly covering the majority of the spillway opening. The greater part of the debris noted in 1957 in the spillway channel has been removed. Conditions at this dam were found to be satisfactory.

G. Noyes Pond Dam

The concrete and stone masonry wall of the dam is becoming dilapidated and in a year or two will need masonry repairs. The sooner these repairs are made the less extensive the work will be and the cost to the owner will be at a minimum. The left spillway has been cleaned of brush and most of the debris as noted previously. The dam was found to be satisfactory for the time being.

H. Tunxis Club Intake and Penstock Dam

This structure is abandoned and no longer ponds any water. It presents no danger to persons and property downstream.

I. Tunxis Club New Trout Pond Dam

The stop planks at this dam have been removed and no water is stored in the pond. Fish screens have also been removed from the spillway. The flow of the stream passes thru the dam in the open slot where the stop planks have been removed.

Compacted fill is needed behind the stone and concrete masonry abutment at the right of the spillway. Additional heavy stone fill should be placed on the downstream side of the concrete wall just to the left of the spillway. This fill should be raised to an elevation just below the top of the concrete wall.

Some of the conditions noted herein were reported a year ago. During the past 12 months, the owner has not taken any action in connection with these conditions. This dam has never been recommended for acceptance following its construction since there always has been some work to be done to complete the structure.

It is recommended that your Board direct that the owner of this dam comply with the recommendations within the next 90 days.

J. Tunxis Club Trout Pond Dam

When inspected in 1957 the report of the undersigned pointed out that a new spillway chute was being constructed of planks across the top of the dam and that repairs were being made as a result of the flood of August, 1955. It was recommended that the owner of the dam file plans and specifications of the proposed new construction and that the spillway capacity to be provided should be designed in such a manner and so constructed as to be adequate for extreme storm runoff conditions.

On September 18, 1957, a letter was sent to the Tunxis Club by your Honorable Board in which you stated the following:

"The structure is in need of additional spillway capacity. Based upon the report of our County Hydraulic Engineer, the added spillway capacity now being constructed does not provide sufficient capacity for anticipated flood flows. Plans and specifications of the proposed construction should be filed and approved before any further work is carried on at this structure. If fish screens are to be placed in front of the various spillways, the fish screen design must be such that the screens will not interfere with the flow of storm water runoff. The fish screen design should be filed and approved before any screens are placed on the spillways of this dam."

At the time of the last inspection, the following conditions were noted at Trout Pond Dam:

1. The swale spillway to the right of the dam is plugged with fallen trees and brush.
2. The old wooden spillway chute at the right side of the dam is plugged with brush and debris. This plugging reduces the capacity of this spillway by more than 50%.



3. The new spillway chute constructed last year was plugged in part with weeds, grass and some brush. This blocking probably reduced the capacity of this spillway by about 15%.

4. The small middle spillway was almost completely plugged with brush and debris. It is doubtful that this spillway was 5% effective at the time of the inspection.

5. The earth fill of the dam is low and it was noted that ample evidence exists on the top of the earth embankment that the dam as a whole has been recently over-topped by high rates of runoff. This condition alone indicates the dam has inadequate spillway capacity.

The swale spillway at the right side of the dam should be completely and thoroughly cleaned and cleared. The spillway channel should be shaped and properly maintained at all times. The earth fill of the dam embankment should be raised and the amount of raise should be determined thru a proper engineering and hydraulic study of the dam, the site of the dam and the drainage area as a whole. Additional spillway capacity should be provided so that there will be no further overtopping of this dam.

In the opinion of the undersigned, one of the problems in connection with the maintenance and operation of this dam has to do with the lack of an access road to the structure. At the present time, access is difficult and it is readily understandable why maintenance personnel do not visit the dam often enough to keep the spillways free of debris. It is recommended that access to the dam be improved and that if necessary, a proper access road with bridges and culverts be constructed and maintained so that the dam may be inspected during and immediately after heavy storms as well as at least once daily to once weekly depending upon the season of the year and runoff conditions.

K. Preston Dam

This dam is still breached at the spillway and the breach is sufficiently wide to allow for the passage of high rates of runoff. Conditions as noted at the time of the last inspection were found to be satisfactory.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE A. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

CD Tolland

August 31, 1959

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspections carried on in the Town of Tolland have now completed the inspection routine in this community and each dam has been examined one or more times during the year 1959. The following is a report on the general condition of the various dams and dam sites situated in the Town of Tolland.

## A. Richmond Dam

At the time of the last inspection of this dam on August 26, 1959, it was noted that flashboards were in place in the central and main portions of the spillway as well as in the two side areas. Flashboards were set so that the top elevation of the upper most board in each of the three spillway areas was almost to the height of the top of the earth embankment of the dam. Thus, no freeboard was available at this dam. This is a dangerous situation and could result in the loss of the dam in time of moderate runoff.

Flashboards should not be raised above the crest elevation of the side spillways by more than 6". If a greater depth of pond is desired, then the entire dam should be raised in order to provide proper freeboard. While at the site and making my inspection, I removed two boards from the spillway notch. The owner should remove all others down to the recommended elevation of about 6" above the crest of the side spillway areas.

Brush and tree growth on the dam, particularly at the toe of the downstream face to the left of the spillway should be cut and removed. This recommendation was made to the owner of the dam a year ago but no clearing of any consequence has taken place in this described area.

B. H. E. Newell Dam

This dam was found to be in good condition.

C. Lost Wilderness Ranch Dam

This structure is still breached as the result of the flood of August, 1955. The breach is wide and large enough to allow for free flow of the stream without impounding any large quantity of water. The pond now formed in the basin upstream of the dam is but a foot or two in depth. It is doubtful if this dam will be restored by the Lost Wilderness Ranch for some time since swimming facilities are now made available to the guests of the Ranch in a new artificial swimming pool.

D. Deeming Dam

This is an earth embankment faced up and downstream with dry stone masonry. The dam is about 100 ft. in length but is less than 9 ft. in height. The drainage area involved at the point of the dam location is only about one tenth of a square mile. In recent years, the pond has become smaller due to silting and growth taking place in the pond itself. In recent years, the dam has been kept in fairly good condition and the small wooden spillway chute has been found satisfactory. There is little or no chance of this dam ever being enlarged and coming under County jurisdiction. Consequently, routine annual inspections of the dam seem unnecessary. It will be checked from time to time to see that no changes are made that will bring the structure within the jurisdiction of your Board.

E. Camp Spruce Hill Dam (Victory Lake)

This dam and spillway were both found to be in good condition. No debris of any sort was found in the spillway channel or under the bridge carrying the local road over the spillway channel. The masonry spillway itself is entirely free of all platform construction that had existed in years gone by. Condition of the dam as noted during the past year is better than at any time in preceeding years.

F. Noyes Pond Dam

The masonry wall at the top of the dam itself needs maintenance. Concrete is disintegrating and field stones are becoming dislodged. There is a small leak thru the masonry structure adjacent to the public entrance. This leak should be checked and corrected in the near future. Conditions at this dam were discussed with the grounds keeper at Tunxis Club as well as with Mr. Stone, a representative and member of the Club group. Both agreed that the work should be done and will plan to do a portion or all of the needed maintenance this fall. Conditions as they exist at the dam are not dangerous but if maintenance is done now, expensive repairs may not be required in the future.

G. Tunxis Club Intake and Penstock Dam

This structure is abandoned from active use and no longer ponds water. It presents no danger to persons and property downstream.

H. Tunxis Club New Trout Pond Dam

This structure was found to be in very good condition. A training wall has been built at the left abutment as recommended in the past and proper fill of a heavy nature has been placed to direct overflowing water during time of major runoff back to the brook itself without washing out earth immediately downstream from the masonry dam. The concrete spillway section as well as the adjacent earth areas and stone masonry abutments were found to be satisfactory.

I. Tunxis Club Trout Pond Dam

This dam was found to be in very good condition. In fact, it is in better condition than noted in a number of years in the past. The wooden chute spillway that had been leaking has now been made watertight. Though the water level in the pond was not high enough to definitely test the spillway, the repair work as described by the grounds keeper indicates that this spillway has been greatly improved. The swale spillway to the right of the dam has been thoroughly cleared of all brush and debris. It now presents a good, free and clear waterway for the passage of normal and excess runoff.

A new around-the-end type of spillway has been constructed on ledge and natural soil to the left of the dam itself. This is a good improvement in that additional spillway capacity will now be available in time of heavy storm runoff.

The entire top of the dam has been paved with about 4" of asphaltic concrete commonly known as black top. With the new wooden spillway, the thoroughly cleaned and cleared swale spillway and, with the new around-the-end spillway channel in ledge and natural soil to the left of the dam, the Tunxis Club Trout Pond Dam should now be able to pass the flow of an extremely heavy storm without resulting in any major damage to the dam. Should the overflowing water from an extremely heavy storm exceed the capacity of the various spillways, water can now flow over the entire top of the dam without endangering the structure by washing out earth and boulders. The asphaltic concrete top will prevent the loss of embankment material and portions of the dam itself by overflowing water.


**TIGHE  
& BOND** CONSULTING ENGINEERS

-4-

J. Preston Dam

This dam was breached in the flood of August, 1955, and remains breached to this day. The breach is wide enough to prevent the formation of any pond during extreme runoff conditions. At the time of the last inspection, the breached dam was found to be satisfactory.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Tolland  
Oct. 26, 1960

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Recent inspections carried on within the Town of Holland have now completed the inspection routine in that community and each dam has been examined at least once during the year 1960. The following is a report on the general conditions of the various dams and dam sites situated within Tolland.

A. Richmond Dam

To the left of the spillway, in the embankment section, a hole has been formed apparently as the result of water overflow. This hole should be filled with compacted earth to the top grade of the embankment section. Stop logs were noted in the spillway at an elevation of from 18-inches to 24-inches above the concrete floor level of the side sections. Stop logs at this height reduce the spillway capacity too much.

The Owner was at the site of the dam at the time of the last inspection. The hole in the embankment was pointed out and the method of repairing the hole reviewed with the Owner. The need for carrying the stop logs in the spillway at a lower elevation was also discussed.

It would be advisable to notify Mr. Richmond of the need for repairing the hole washed in the embankment and the necessity of maintaining stop logs at a lower elevation in the spillway structure.

B. H. E. Newell Dam

This dam was again found to be in good condition. The structure is small in size and impounds very little water.

C. Lost Wilderness Dam

This dam, breached as the result of the flood of Aug. 1955, still remains in the same general condition. The breach thru the embankment is wide and deep. It is large enough to pass flood flows. Immediately upstream of the old dam centerline there now exists a mud, brush and bough dam apparently formed by beavers. This dam is approximately 4 ft. in height and about 35 ft. in length. Many of the sticks forming the dam do not show the beaver cutting marks. However, they were probably broken from trees and branches by weathering action and made use of by the beavers in building their dam. The dam was found to be fairly watertight and the pond formed was almost as large as the pond originally formed by the breached dam.

During the inspection of the dam, the undersigned poked small holes thru the mud and brush forming the dam and opened two small waterways on the ends of the dam. However, the beavers undoubtedly will plug these holes and maintain their dam in a fairly watertight condition. As existing, the dam does not endanger persons and property downstream.

D. Deeming Dam

The embankment of this small dam was found to be in good condition. The small wooden spillway chute shows evidence of rotting and deterioration. However, the chute is satisfactory and the structure as a whole is in a safe condition.

E. Camp Spruce Hill Dam (Victory Lake)

This dam was found to be satisfactory in its present condition. The embankment is well shaped and in proper condition. One board was noted in the spillway notch. This board is very low in height and does not result in the storage of a great deal of water. However, it would be advisable for the Owner to remove this board until after the Spring runoff. The extra storage in the pond made available by the removal of the one remaining board will aid in reducing the overflow from the dam in time of any heavy storm conditions.

The right abutment at the spillway, where the right wingwall adjoins the bridge abutment should be examined from time to time by the Owner, to be sure that no leakage develops at this point. There is a short travel distance thru the earth embankment for seepage water and consequently this location could be a weak point in the dam. However, at the time of the last inspection there was no evidence of seepage occurring and the masonry, though rough and somewhat poor, appeared stable and safe.



F. Noyes Pond Dam

This dam was found to be in satisfactory condition. The old spillway at the left end of the masonry wall has been plugged up with earth and a new spillway formed to the right of the old drawdown spillway structure. The new spillway has been cut into the masonry wall and the dam embankment itself. It is a poured-in-place concrete spillway. Downstream of the dam the earth has been graded off and filled so that the section of the dam is now stronger and more stable than ever before. The area that was once overgrown with brush, wet and swampy is now high, dry, grassed-over and well graded.

To the right of the dam there exists the swale on natural ground that also provides spillway capacity for this structure.

G. Tunxis Club Intake and Penstock Dam

This structure has been abandoned and is inactive. As now existing it is not in use and it does not endanger persons and property downstream.

H. Tunxis Club New Trout Pond Dam

This dam was found to be in very good condition when last inspected. The concrete masonry, the stone masonry and the earth work were all found to be satisfactory.

I. Tunxis Trout Pond Dam

This dam was found to be in good condition when last inspected. Leakage occurring thru the dam is negligible. All spillways were found to be free of any debris and were in good operating condition. The asphalt concrete on the surface of the dam is in fairly good shape. However, a few small holes have been formed adjacent to timber spillway structures. These holes in the asphalt should be repaired before they become larger. They can be repaired either with asphalt or it might be easier to repair them by filling the small cavities with a sand cement mixture that can be purchased in bags, brought to the site, mixed with water and set in place. By repairing these holes while they are small, more expensive and larger repairs that will be required in the future can be prevented. The swale spillway in the natural earth, to the right of the dam, should have the small voids that exist filled with rocks and packed earth. The log and debris material, as existing at the time of the last inspection should prevent any continued erosion of the channel bottom upstream toward the pond.

**TIGHE  
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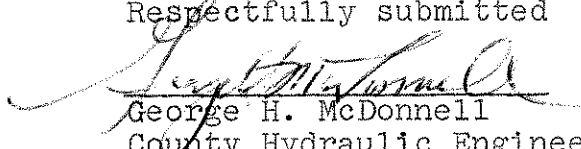
4.

J. Preston Dam

This dam was breached in the flood of August 1955. The breach still exists and it is wide enough to pass flood flows. There is no evidence of any repair work being planned at this breached dam.

During inspections over the past three years, no persons have been found living at the old cottage adjacent to and downstream of the dam. Apparently the property is not being actively used by the Owner.

Respectfully submitted

  
George H. McDonnell

County Hydraulic Engineer

GHM/cmb

7-61  
GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

July 31, 1961 CD General

The Hon. The Board of County Commissioners  
Hampden County Court House  
Springfield, Mass.

Gentlemen:

As noted in my report to your Board regarding the condition of the dams within the Town of Tolland, beaver dams are becoming numerous, particularly in the western part of our County. The majority of these dams are small and could be classified as of a nuisance type. However some flood stands of timber and the flooded trees will soon die.

Many of the beaver dams are built in the spillways of larger dams for the purpose of raising the water level in existing ponds 6 inches to a foot or more. However, as mentioned in the report on the dam at Lost Wilderness Ranch, the beavers have built a structure that is 5 feet high and at least 60 feet long. It holds back well over a million gallons of water. Such a dam, if man made, because of the quantity of water stored, would normally require the filing of plans and specifications and approved construction procedures with suitable materials. If a dam of this size should suddenly fail, and if it happened to be located on a site where the sudden release of a 5 ft. head of water could injure persons and damage property, the existence of such a dam could present a serious problem.

Would it not be advisable to obtain an official opinion as to the responsibility of the property owner on which such a dam is built by beavers, should such a dam fail? On discovering a dam of this type and on determining that a dangerous condition exists, should the owner of the property involved be directed to remove the dam or is the removal of such a structure the responsibility of some State or Federal Agency?

It is requested that your Board take this matter under consideration and I will then be guided by your instructions in giving advice to property owners wherein beaver dams of a dangerous height and impounding large quantities of water are encountered.

Very truly yours,



George H. McDonnell  
County Hydraulic Eng'r

GHM/mm

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# **TIGHE & BOND**

**CONSULTING ENGINEERS**

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Tolland  
Aug. 3, 1961

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections carried on recently within the Town of Tolland have now completed the inspection routine in that community and each dam has been examined at least once during the year 1961. The following is a report on the general condition of each of the dams and dam sites situated within Tolland.

A. Richmond Dam

Three stop logs were found in the right spillway section at the time of the last inspection conducted on July 27, 1961. Two of these stop logs were removed by the undersigned. The left and the central sections of the spillway were found to be blocked in part with beaver dam construction and the level of water in the pond was at a height above that normally observed. The Owner of the dam was not at the house adjacent to the dam on the day of the inspection.

It is recommended that the Owner be notified to keep the stop logs out of the side spillways and to also remove the beaver dam construction as often as it is noted to be present. Each day, when the Owner is at the site of his property, he should inspect the dam and any build-up of beaver dam construction should be torn down.

The cavity in the earth embankment at the left of the spillway still has not been repaired. It should be filled and the embankment properly shaped and graded.

It is recommended that in the future, following the Summer season, the Owner remove the stop logs and a portion of those logs in the central spillway section, to a low enough grade to draw down the pond somewhat and to provide adequate capacity for the passing of flood flows which could occur during Fall or Spring heavy runoff seasons.

B. H. E. Newell Dam

This dam was found to be in good condition. The structure is very small in size and impounds an insignificant quantity of water. It does not endanger persons and property downstream at all.

C. Lost Wilderness Dam

Conditions at this dam are about the same as were reported one year ago. The old earth embankment dam is still breached and the width of the breach is sufficiently large to pass flood flows.

A short distance upstream of the old earth embankment dam, beavers have built a substantial structure and at the time of the last inspection in July of this year, it was noted that the water level in the pond was as high as that experienced in years gone by when the earth embankment dam was in a usable condition. In fact, the beaver dam construction may be impounding water to a slightly greater height than experienced in times during the past. The water is now ponded to a point where it runs around the old earth embankment thru a swale spillway. The beavers have constructed a small dam in the spillway to try and prevent the water from running away in that direction.

With the beaver dam as now existing, a substantial quantity of water is held in the pond. If the old earth embankment dam was to be reactivated to form a pond similar to that now existing as the result of beaver construction, the Owner would be required to file plans and specifications of his repaired structure. However, the beavers have accomplished the restoration of the pond without the necessity of filed plans and specifications.

The undersigned has noted more and more beaver dam construction throughout the western portion of the County during the past year. Some of these dams are quite substantial. The one at the Lost Wilderness Pond site is at least 60 ft. long and about 5 ft. in height. Though sudden failure of this dam might not cause any damage to persons and property downstream, there is always a chance that an individual fishing or walking along the stream could

be swept away by any sudden release of water.

Deeming Dam

- D. This small dam impounds an insignificant quantity of water from a small drainage area and, though it has been inspected for a number of years, is much too small to come under County jurisdiction. There is no evidence that it ever will come under County jurisdiction and consequently inspections at this dam are no longer thought necessary.

E. Camp Spruce Hill Dam (Victory Lake)

The embankment at this dam was found to be satisfactory. Some vegetation was growing on the side slopes and the advantage of keeping the vegetation cut was explained to the camp Owner and other camp personnel. The spillway was found to be in satisfactory condition and the right abutment area wherein the possibility of leakage was pointed out a year ago, was found to be in satisfactory condition.

F. Noyes Pond Dam

This dam was found to be in satisfactory condition. Within a few years the concrete wall will definitely be in need of repairs and routine maintenance. For the present time, the structure is in satisfactory condition.

G. Tunxis Club Intake and Penstock Dam

This structure is in the same general condition as reported in previous years. As now existing it is not in use, it impounds an insignificant quantity of water and it does not endanger persons and property downstream.

H. Tunxis Club New Trout Pond Dam

The masonry dam and its related abutments were found to be in satisfactory condition. There is some indication that movement of the stone fill and the concrete masonry cap on the right side of the dam, just downstream of the right abutment area has occurred in an outward and downward direction. This condition should be observed from time to time by maintenance personnel and any corrective action needed, should then be taken.

I. Tunxis Trout Pond Dam

Brush in the spillway openings should be cleared and cleaned out. The hole at the left side of the swale spillway to the right of the

dam should be prevented from enlargement by proper filling and grading with heavy material.

Boards at the right spillway in need of replacing should be removed and new boards nailed in place.

Holes in the asphalt paving on top of the earth embankment of the dam should be tightly plugged and sealed over with Type I material.

Outside of the above listed items of maintenance, this dam is in satisfactory condition.

J. Preston Dam

Conditions at this dam are in general the same as reported in recent years. The breach thru the dam is wide and free of debris. It is large enough to pass flood flows.

A beaver dam has been built in the brook a short distance upstream from the old earth embankment and masonry spillway dam. This beaver dam is about two feet in height and impounds a very small quantity of water. The beaver dam is completely independent of the original earth and masonry structure.

On the roadway leading to the dam site, a second beaver dam has been constructed and as a result of this dam the roadway is quite wet, soft, unstable and unsafe for the passage of motor vehicles. This beaver dam has nothing to do with the safety of the Preston Dam but it is further evidence of beaver activity throughout the western part of Hampden County. This beaver dam forms a small pond in a somewhat swampy area and backs up a sufficient quantity of water to not only make the road impassable but also floods out a fairly large area wherein tree growth could eventually be killed by the standing water.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb



GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Tolland  
August 13, 1962

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Mass.

Gentlemen:

Inspections carried on recently within the Town of Tolland have now completed the inspection routine in that community and each dam has been examined at least once during the year 1962. The following is a report on the general condition of each of the dams situated within that Town.

## A. Richmond Dam

This dam is now owned by the Connecticut Valley Girl Scouts, Inc. at 74 Forest Street, Hartford 5, Conn. Telephone number is Hartford 522-0163. The left one-third section of the spillway is plugged with debris and brush of a beaver dam. The central portion and right section of the spillway is open. Water level in the pond at the time of the inspection was at the elevation of the single flashboard in the right one-third section of the spillway. Immediately downstream of the spillway, the stream bed and spillway toe area is filled with and choked with debris, mostly of beaver dam origin. This debris should be cleaned out and the spillway structure maintained in a clean and good operating condition.

At the earth embankment to the left of the spillway, there is a sunken area behind the abutment wall. This area should be filled and the surface of the earth brought to the grade of the top of the stone wall masonry.

The dam embankment should be cleared of all brush for the entire length of the earthen portion of the structure.

B. H. E. Newell Dam

This dam is in the same general condition as reported previously. The masonry of the dam itself is in excellent condition. Downstream of the dam proper and upstream of the road culvert, the floor of the channel is breaking up somewhat but the condition is satisfactory for the present time.

C. Lost Wilderness Dam

Conditions at this dam are the same as reported a year ago. The old earth embankment dam remains breached and the width of the breach is sufficiently wide to pass anticipated flood flows from the drainage area.

The beaver dam reported previously at a point just upstream of the old earth embankment is still in existence and is probably a little bit higher than noted a year ago. The beaver dam is well built and little leakage takes place thru the structure. Even with the extremely dry Summer that has been experienced, the beaver dam is sufficiently tight whereby water level behind the structure is at the elevation of the top of the dam. The old spillway area has been cut off completely by beaver dam construction and the water level as now stored is equal to the height of the old earth embankment dam.

On discussing the beaver dam with the owner of the Lost Wilderness Ranch, it was learned that the dam has been broken from time to time but the beavers repair it very rapidly and efficiently.

D. Camp Spruce Hill Dam (Victory Lake)

The embankment section at this dam was found to be well shaped and properly maintained. The spillway structure was found to be in very good condition and the spillway was clean and clear of any debris. The water level was at the crest of the spillway and no flashboard was in place on the concrete overflow. The owner has added a concrete wall to the right abutment at the weak section of the fill previously noted. The new wall strengthens the dam and improves the safety of the structure. A similar wall was built at the left abutment but the quality of workmanship at this wall is not too good and the wall does not improve conditions to any great extent. At the time of the inspection, the dam was considered in very good condition and safe.

E. Noyes Pond Dam

Brush was noted growing from the masonry of the spillway section and this should be killed before the masonry is damaged by this growth. Leakage was noted in the masonry at the left side of the slide in which stop logs are placed in the spillway. This leak is not serious but should be checked from time to time and the condition corrected if the leakage increases to any great degree. In the not too distant future, the masonry of this dam will be in need of routine maintenance and service.

F. Tunxis Club Intake and Penstock Dam

This structure is the same as reported for many years. As now existing, it is not used and it impounds an insignificant quantity of water. The structure does not endanger persons and property downstream.

G. Tunxis Club New Trout Pond Dam

The dam was found to be in satisfactory condition. The masonry spillway was in good condition and the abutment areas appeared sound. The earth embankment portion of the dam was satisfactory and suitably shaped. No brush growth was noted on the structure. The stone fill and related concrete cap downstream and to the right of the spillway has not moved any more than noted previously. The dam was considered safe and in satisfactory condition when inspected.

H. Tunxis Trout Pond Dam

The hole to the left of the swale spillway at the right end of the dam has been partly filled in with logs and debris. This hole should be completely filled in and examined from time to time for any necessary refilling or maintenance.

Brush along the dam has been killed with what appears to be a chemical weed killer. The brush itself should be cut down and removed.


Any broken or rotten planks on the spillways of the dam should be replaced. It was noted that asphalt patching has been recently placed on the dam to fill in holes and worn areas.

I. Preston Dam

Conditions at this dam are the same as noted in recent years. The breach thru the dam at the site of the old spillway is wide and free. It can pass flood flows.

The beaver dam reported a year ago and built upstream of the main dam is still in the same condition. Its height remains about 2 ft. and a very small pond of water is formed. The beaver dam is completely independent of the original earth and masonry structure.

Respectfully submitted,

  
\_\_\_\_\_  
George H. McDonnell  
County Hydraulic Engineer

GHM/mb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Tolland  
Oct. 25, 1963

The Hon. the Board of County Commissioners  
Hampden County Court House  
37 Elm Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on within the Town of Tolland have now completed the inspection routine in that community and each dam has been examined at least once during the year 1963. The following is a report on the general condition of each of the dams located within Tolland.

A. Richmond Dam(Connecticut Valley Girl Scouts, Inc.

The sunken area in the earth embankment to the left of the spillway reported a year ago, has been filled and the surface of the dam embankment brought to proper grade. Seepage noted thru the downstream wall, just to the left of the spillway, has been stopped and apparently as the result of this work. The embankment section was found to be satisfactory though there was some brush growth present but the brush is not thick. A beaver dam has been built across the spillway extending for the full crest length of the three separate sections. The beaver dam is actually in the pond and just upstream of the masonry spillway structure. The beaver action has caused a slight rise in pond elevation but, in the opinion of the undersigned, the presence of this dam at the spillway crest does not endanger the structure. The dam was considered satisfactory when inspected.

B. H. E. Newell Dam

This small dam was in the same general condition as noted in previous years. The masonry was in excellent condition and the tube spillway downstream thereof and under the highway was satisfactory. Though the floor of the channel shows some evidence of breaking up and wear, the condition is not serious.

C. Lost Wilderness Dam

This dam is still breached as the result of the flood of August 1955. However, immediately upstream of the breach there exists a large beaver dam, as reported in recent years and this beaver structure impounds water to a height even greater than was impounded prior to loss of the dam. Should this beaver dam wash out, there is a possibility of doing damage to roads and culvert structures downstream.

The Owner has broken the dam from time to time to allow water to be released downstream but, the beavers repair the break very rapidly and apparently quite efficiently.

There is very little chance that this dam would go out suddenly or that a large breach would occur over a relatively short period of time. Any major storm would result in water passing over the entire length of the beaver dam and no doubt the brush and twigs making up the structure would be washed away slowly.

D. Camp Spruce Hill Dam (Victory Lake)

The embankment at this dam was found to be in excellent condition. It is well shaped and properly maintained. The spillway masonry was in satisfactory condition and the bridge over the spillway was OK though abutments supporting the bridge are in poor condition. No toe seepage was noted along the embankment although some seepage water was noted in the brook immediately downstream from the spillway bridge. Seepage water emerged about in line with the drawoff pipe and it is probably leakage thru the drawoff gate. One stoplog was in place in the spillway notch and since the camp was found closed for the year, this stoplog was removed by the undersigned. The dam was considered in very good condition and safe when inspected.

E. Noyes Pond Dam

This low dam was found to be in good condition. The embankment was satisfactory and the leak noted a year ago appears to have been repaired. No leakage was noted at the time of inspection. Water level in storage however was down about one and one-half feet and this could be the reason that leakage this year was not evident. The spillway openings were free and clear of debris and though the masonry wall is in need of some maintenance, it was considered safe.

F. Tunxis Club Intake and Penstock Dam

About in the site of this old abandoned structure, the Tunxis Club has constructed a small new dam and pond. Plans and specifications have not been filed with the County, to the knowledge of the undersigned, and the groundskeeper who was present during the inspection was instructed to notify Club personnel that drawings and specifications of the structure must be filed. He promised that the plans and specifications would be prepared and submitted to the County.

The quantity of water stored is somewhat less than one million gallons and the height of the dam is only about 5 ft. at most, above the bed of the stream. However, the drainage area involved is in excess of one square mile. The structure consists of a somewhat poorly shaped earth embankment that serves its purpose satisfactorily. No seepage was noted at the downstream toe. Many boulders were evident in the fill and it can be expected that there may be some settlement of this embankment within the coming year. The groundskeeper notified the undersigned that the Club members plan to grade the embankment and to then cover it with loam and to promote a growth of sod.

The spillway consists of a concrete wall with embankment sections on both sides of the wall. A notch in the spillway wall acts as the overflow facility for the small pond. The concrete masonry construction appeared sound and well built. The groundskeeper informed the undersigned that the wall is built on ledge and extends about 4 ft. below the bed of the brook.

It is recommended that the Club be officially notified to file drawings and specifications on this new structure.

G. Tunxis Club New Trout Pond Dam

The masonry section of the structure was in good condition. The pond was empty and at least one-half of the stoplogs were out of the structure. The earth embankment section was in fair condition, well shaped and was stable. No seepage was noted at the toe and little would be expected since the pond was drawn down. The stone fill downstream of the spillway wall was OK.

H. Tunxis Trout Pond Dam

The swale spillway to the right of this dam was clean and clear of debris and operating satisfactorily. The right wooden spillway chute is beginning to deteriorate a bit but is OK for the present time. Stoplogs in the drawdown gate slots were found to be satisfactory. The screen in this structure was a bit dirty but other spillway facilities



at the dam will pass water safely, even should the screen become completely plugged.

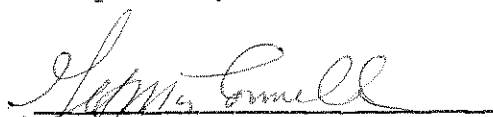
The asphalt surface of the embankment is deteriorating somewhat but was found to be satisfactory for another year.

The new wooden chute spillway was found to be in very good condition. A swale spillway has been shaped to the left of the dam in the abutment area by scraping earth to natural rock elevation. At time of extreme flood flow conditions, the two wooden chute spillways, the stoplog spillway and the right swale spillway will now provide for overflow capacity, together with the new left end swale spillway. In the opinion of the undersigned, the dam has good spillway capacity as of now and even though an extreme flood might overtop the embankment for a short period of time, the embankment could withstand the flow.

I. Preston Dam

This dam, breached in the flood of August 1955 remains breached and the Owner has not begun any construction as yet in accordance with the filed approved plans and specifications. The beaver dam previously reported was noted in good condition and a small pond is formed by this structure.

Respectfully submitted

  
George H. McDonnell  
County Hydraulic Engineer

GHM/cmb

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991  
CD Tolland  
October 23, 1964

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on within the Town of Tolland have now completed the inspection routine in that community and every dam has been examined at least once during the year 1964. The following is a report on the general condition noted at each of the dams located within the Town of Tolland.

A. Richmond Dam (Connecticut Valley Girl Scouts, Inc.)

The embankment of this dam was found to be in good condition. It is fairly well shaped and seepage thru the embankment that had been noted in previous years no longer occurs. The plugging of sink holes and the addition of earth to the embankment has apparently corrected the seepage condition.

The masonry of the spillway structure is satisfactory and no flashboards were in place on any of the three sections of the masonry spillway.

The beaver dam noted in the past was still in place and about in the same condition as reported in 1963. The beaver dam has been built upstream of the spillway and its elevation is about one foot more or less above spillway crest elevation. The beaver dam does not endanger the Richmond Dam since it is located somewhat upstream from the spillway and its crest length is longer than that of the spillway itself. Reasonably high freeboard still remains above the crest of the beaver dam. Should the beaver dam be raised any higher, then it will be necessary that the dam be removed in order not to endanger the main dam with a low freeboard.

In spite of the presence of the beaver dam, it is the opinion of the undersigned that the Richmond Dam is safe and satisfactory.

B. H. E. Newell Dam

This small dam was found to be in suitable condition. The small pond formed by the dam was almost empty on the day of inspection. The masonry of the dam itself and the channel between the spillway and the highway culvert were okay. Whereas the floor of this spillway channel was reported as showing evidence of breaking up a year ago, it was noted this year that the floor was covered completely with debris and muck apparently deposited there from a cleaning operation that had been carried on in the pond itself. Flood flows of the Spring will wash this material away and the floor of the channel will be examined again next year.

C. Lost Wilderness Dam

This dam is still breached as the result of the flood of August, 1955, and the breach is wide and deep. However, immediately upstream of the old man-made dam there still exists a very large beaver dam. The beaver dam impounds water to a height greater than was impounded by the old flood breached dam. Should the beaver dam wash out in a rush, there is a possibility of damage being done to roads and culvert structures downstream. However, it is doubtful if the beaver dam will fail completely. It is well built and each time the owner has broken down a part of the dam to allow for the release of stored water, the beavers repair the break very rapidly and maintain the existing high water level in storage.

D. Camp Spruce Hill Dam (Victory Lake)

On the day of inspection it was noted that the drawdown gate thru the dam embankment was open and the Lake almost empty. Much of the upstream face of the dam embankment was exposed. The embankment was found to be in good condition. It is well shaped and has no weed growth on its surface.

The spillway masonry was found to be satisfactory and one flashboard was in the crest of the spillway notch. Abutments supporting the bridge over the spillway are rather dilapidated and in poor condition but are not in danger of failing. The dam was considered satisfactory at the time of the inspection.

E. Noyes Pond Dam

The masonry of this low dam, though cracked here and there, and with some of the field stones loose and missing, was considered to be satisfactory. Stop logs were in place in the small spillway structure to the normal elevation and water level in storage was noted to be down about one foot more or less from the crest of the upper stoplog. The wide spillway notch formed to the right of the stoplog spillway was clean and clear of any debris. The downstream earth fill that extends along most of the masonry wall forming the dam was well shaped and in good condition. No sign of any leakage was noted at the dam this year.

F. Tunxis Club New Dam at Penstock Site

The embankment at this dam is still quite rough and contains many large and massive boulders. However, the dam is wide for its height and there is little evidence of any seepage taking place thru the embankment in spite of the fact that much of the volume of the embankment is made up of boulders. The earth fill of the embankment is till, light in nature, and thus is quite impervious. Water level in storage was at the crest of the spillway. Fish screens were in the spillway notch and were found to be clean. The concrete masonry of the spillway section was in very good condition.

The swale spillway to the right of the embankment of the dam has not been well shaped but it is functional as it exists.

Though the dam embankment is rough in sections and consists of many boulders in the fill, the undersigned considers it satisfactory.

While making the inspection of this dam, the undersigned met with the groundskeeper and recommended that the embankment be shaped better and the surface smoothed with additional fill. A recommendation was also made that the swale be properly shaped. This work will be done by the groundskeeper.

G. Tunxis Club New Trout Pond Dam

The earth embankment sections of this dam were in good condition, they were well shaped and no weed growth was noted. No toe seepage was observed along the downstream edge of the embankment fill.

The concrete spillway was in satisfactory condition and a fish screen

was in the spillway notch. The screen was clean. Even if this screen should become plugged with debris, flood flows can overflow the main width of the concrete masonry spillway structure.

The rock fill downstream of each side of the concrete spillway wall was in satisfactory condition and there is little evidence of any further movement of this fill. A slight movement was noted a few years ago but this condition appears to have stabilized.

On the day of inspection, water level was at the crest of the stoplogs in the central notch of the spillway masonry structure. In the opinion of the undersigned, the dam was satisfactory.

H. Tunxis Trout Pond Dam

The swale channel at the right of the dam is partly plugged with debris. Some of this debris may have been placed by beaver action. However, any flood flow that takes place will wash out the debris and clean the channel.

The right wooden spillway has become deteriorated to a point wherein rotted and broken planks should be replaced and any needed repairs of the embankment that may be found underneath the spillway chute floor should be made. There were no fish screens in this spillway.

The small spillway notch between the two large wooden spillway structures is plugged with debris and trash. This spillway notch and its discharge section should be cleaned of all brush and trash.

The new wooden spillway chute to the left of the spillway units was found to be okay. Water level in storage was at the crest of the wooden spillways.

The left area of the dam wherein earth has been excavated to ledge was satisfactory and this area will act as an auxiliary spillway if needed in time of flood flow.

The embankment of the dam is in need of attention. Voids evident on the top of the embankment should be filled with compacted earth and then the surface areas where repairs are made should be paved


with asphalt patching. Failure to do this work now may result in the need for more expensive and extensive repairs at a later date.

The abutment areas of this dam were considered to be satisfactory.

I. Preston Dam

This dam, breached in the flood of August 1955 remains breached and no work has been done in connection with the repair of the dam in accordance with approved plans and specifications that are on file. The small beaver dam previously reported and located in the pond upstream of the main dam still exists and a small pond is formed by this beaver-made structure. The presence of this small beaver dam does not endanger persons and property downstream.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/mg

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

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CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

C<sup>D</sup> Tolland  
September 22, 1965

The Hon. the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections carried on within the Town of Tolland have now completed the inspection routine in that community and every dam situated within Tolland has been examined at least once during the year 1965. The following is a report on the general condition noted at the dams within the Town of Tolland.

A. Richmond Dam (Connecticut Valley Girl Scouts, Inc.)

On the day of inspection, stoplogs were found to be in the spillway to an elevation about equal to the top of the structure. These stoplogs should all be removed until after the heavy Spring runoff.

The beaver dam previously reported is still in place and the top of this dam is approximately the same elevation as the top of the dam embankment. The beaver dam is built across the approach to the spillway structure.

Except for the fact that stoplogs are still in place in the slots of the spillway, this structure was found to be okay. Little or no toe seepage was noted along the bottom of the front face of the spillway and the embankment toe areas.

Water level in storage was at the top of the beaver dam and thus, very nearly to the elevation of the earth embankment sections of the structure, particularly just to the left of the spillway. Heavy flood flows will undoubtedly pass over the embankment of the main dam at a point just to the left of the spillway. Some erosion already has taken place on the top of the embankment. The eroded area should be repaired by filling



and the height of the dam embankment raised as necessary unless the beaver dam can be permanently removed. The downstream stone walls that form the dry face of the dam embankment sections can and will protect the earth embankments from overflowing water to some extent. However, during a continued flood flow condition, it is possible that the amount of water that could pass over the embankment sections might be sufficient in quantity and force to damage the embankments themselves.

It is recommended that the owners remove the beaver dam and, if this action is not successful and the beavers continue to rebuild the dam, the earth embankment sections should be raised to provide adequate freeboard. Each year the stoplogs should be taken out of the spillway notches and kept out from the end of the Summer thru the Spring rainy season.

B. H. E. Newell Dam

The masonry of this dam and spillway structure was found to be okay. No stoplogs were in place and the water level in storage was at the crest of the masonry spillway. The floor of the channel that extends from the spillway to the highway culvert was found to be covered with debris consisting of brush, gravel, sod, etc. This material will not plug the highway culvert should a heavy runoff condition occur and wash it away.

The stone masonry side walls just downstream of the dam were okay.

C. Lost Wilderness Dam

This dam is still breached as the result of the flood of August, 1955, and the breach is wide and deep. The beaver dam reported previously and built immediately upstream of the original but now breached man-made dam, still exists. The beaver dam impounds water to a height greater than was impounded by the old flood breached structure. The beaver dam is quite strong and the entire dam is becoming overgrown with a thick sod. It is doubtful if the beaver dam will fail under flood flow conditions. If it does, it will probably fail slowly.

D. Camp Spruce Hill Dam (Victory Lake)

The earth embankment was found to be in very good condition. It is well shaped and there was little evidence of erosion on the surface. Some of the surface has a turf cover and the remainder is a packed gravel.

One stop log was in the spillway and this should be removed. The undersigned made the inspection of the dam in the presence of the Director of the Camp and he agreed that when the Camp was closed for the Winter, that the stoplog would be removed from the spillway. Water level in storage on the day of inspection was at the bottom of the stoplog and at the crest of the masonry spillway structure.

The masonry of the spillway was in good condition. However, the left abutment that supports the bridge over the spillway channel downstream of the spillway proper is failing. It has settled and moved outward. Further failure could result in the small wooden bridge dropping into the spillway channel and thus plugging the waterway. The Camp Director said that the bridge abutment would be rebuilt.

E. Noyes Pond Dam

The masonry at this dam was in fair condition. Some repair work could be done to the structure but it is not in too bad a condition at the present time. The problem is more related to aesthetics than to the safety of the dam. There is a small leak under the masonry dam thru stonework of the wall at a point near the right end of the structure. I showed this leak to one of the Club members and the maintenance man. They will take care of it this Fall.

A wooden dock has been built out into the Lake just to the right of the main spillway. The dock is not anchored too well and in time of flood flow conditions, the force of water entering the spillway could cause the dock to break away and plug the spillway. It was recommended that this dock be anchored in a more sound manner. The Club maintenance man said this matter would be taken care of.

The spillway itself was okay and found to be free and clear of any debris. Water level in storage was at the top of the upper stoplog in the small masonry spillway.

The earth fill in front of the dam and at the left of the structure was okay. No toe seepage was noted in the earth fill section. In fact, the only toe seepage of any consequence noted was at the leak previously outlined.

F. Tunxis Club New Dam at Penstock Site

This dam was in the same general condition as reported a year ago. Vegetation growth on the embankment is improving. The embankment is still quite rough but it is stable and sound. The masonry spillway was found

to be satisfactory. A fish screen was in place but it was noted to be fairly clean. The dam was considered to be satisfactory when checked.

G. Tunxis Club New Trout Pond Dam

Both earth embankment sections were found to be in good condition. They are well shaped and the vegetation has recently been cut. No toe seepage was noted whatsoever, nor was there any evidence of erosion. The concrete spillway structure was in good condition. A fish screen was in place and it was found to be clean. Water level in storage was at the masonry crest of the wide portion of the spillway structure. Stoplogs and the fish screen were across the central notch of the spillway.

The rock fill at the left of the spillway and downstream thereof was found to be okay. However, the rock fill to the right of the spillway will need maintenance work this coming year. A sizeable void has formed under the concrete cap. Also, the concrete cap has moved outward from the masonry spillway itself. The undersigned discussed this condition with the maintenance man of the Club and recommended to him that the cavity be filled with cement grout. The condition at this concrete cap will be observed during 1966 to see if there is any further motion. It was also recommended to the maintenance man that the opening between the concrete cap and the masonry spillway be filled with grout.

H. Tunxis Trout Pond Dam

The inspection of this dam was made in the presence of the Committee of the Club in charge of dam maintenance. The right wooden spillway has been rebuilt and all rotted planking has been replaced. The fish screen at the small spillway was fairly clean. The swale spillway to the right of the dam was found to be satisfactory but in a year or two the brush should be cut. The asphalt top of the embankment needs filling and patching in a number of spots. This condition was pointed out to the Committee making the inspection with the undersigned.

Toe seepage was about normal. In a year or two, the entire toe area of the dam will need to have all brush cleared. In a few years, the upstream planking on the embankment will need replacing. Some of it is missing and other portions of the planking are becoming quite rotten.

The undersigned discussed the possibility of raising this dam and constructing a new spillway and ledge around the left end of the dam. The Committee would like to deepen the pond and it was pointed out to them that by removing the present spillway facilities across the dam embankment

and enlarging as well as raising the embankment, a single major spillway could be cut around the left of the dam by simply building a protective wall adjacent to the earth embankment section of the structure and then shaping a spillway in the natural ledge. The Committee will give consideration to this improvement and, if work is to be done, plans and specifications of the proposed changes will be filed with the County.

I. Preston Dam

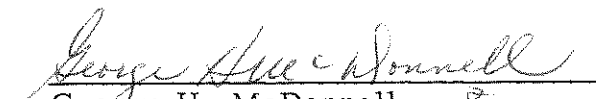
✓ This dam is still breached and is in the same general condition as reported previously. No work has been done in connection with the repair of the dam. Plans and specifications for repairs were approved some time ago. The small beaver dam previously reported and located in the pond just upstream of the main dam still exists and a small pond is formed by the beaver-made structure. The presence of this small beaver dam does not endanger persons and property downstream. The small building that was used as a Summer cottage by a former owner of the dam and that was located downstream of the structure to the left of the brook was found burned to the ground when the dam was inspected this year. Outside of lumbering activity in the general area, there was no signs of anyone having been in the vicinity of the dam during the past year.

J. Chamonix Chalet Properties, Inc. Dam

This dam is the new dam under construction and on which a separate report was submitted dated Sept. 1, 1965. The dam is being constructed in accordance with approved plans and specifications. At the time of the latest inspection, as noted in my communication of Sept. 1, 1965, nearly all of the work at the dam had been completed and the only major work that remained to be done was the final topping of the embankment as well as the construction of the flood flow swale spillway.

Your Honorable Board sent a letter to the owner on Sept. 8, 1965, directing that the flood flow spillway be completed immediately. The owner of the dam has called the undersigned and has promised that the work of constructing, shaping, loaming and seeding the emergency flood flow spillway will be completed in Sept. of this year.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Tolland  
August 8, 1967

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Inspections of dams in the Town of Tolland have now been completed. Every dam situated within Tolland has been examined at least once during the year 1967. The following is a report of the general conditions noted at the dams within the Town of Tolland:

A. Richmond Dam - Connecticut Valley Girl Scouts

On the day of inspection construction work was going on in the general area of the pond and adjacent to the dam. The pond bottom was being cleaned and excavated material was being hauled away in heavy dump trucks to nearby points of disposal. No work was being carried on at the dam and no water was in storage in the pond. During the past year the undersigned has discussed the condition of the dam with representatives of the Connecticut Valley Girl Scouts, Inc; The Girl Scout officials have planned to enlarge and improve the dam and to do many improvements in the general area of the pond in order to build a substantial Girl Scout summer camping installation. As of the writing of this report, plans have been received from the architect designing the improvement of the Girl Scout camp and these plans, showing an enlarged and improved installation are being reviewed. It would be expected that any construction work relative to the dam will be carried out this Fall.

B. H. E. Newell Dam

No stop logs were in the crest of the spillway. The spillway concrete masonry wall forming the major portion of the dam was found to be okay. Water level in storage was at the spillway crest. The downstream dry stone walls together with their concrete caps were satisfactory.

C. Lost Wilderness Dam

This dam is still in the same condition as reported in recent years. The man-made dam breached in the flood of August 1955, remains breached. The opening in the old stone and earth filled dam is wide and deep. However, just upstream from the old man-made dam the beaver dam still exists and it forms a pond about the same size as was originally formed by the man-made dam. The beaver dam is quite strong and the entire dam has become heavily overgrown with a fairly thick sod. Water overflows the beaver dam at various low points. It is doubtful that this beaver dam will fail under flood flow conditions. If it does, it will probably fail fairly slowly.

D. Camp Spruce Hill Dam (Victory Lake)

The embankment at this dam was found to be in very good condition. The top is quite stable and shows little or no sign of surface erosion. The water side of the slope is in good condition. The dry side of the dam and the toe area were found to be okay.

The spillway structure is in the best condition noted in years. The wooden planking and covering have been removed from in front of the spillway giving a much increased, free overflow spillway crestlength.

One stop log was in the spillway notch at the center of the spillway crest structure.

New bridge abutments and a new bridge have been built just downstream of the spillway. This has greatly improved this portion of the dam. A new drawdown tube has been built through the dam and connected to the drawdown gate structure. This structure has been serviced.

Inspection of the dam was carried on in the presence of the Camp Director and Owner. In the opinion of the undersigned this dam is safe; and, as mentioned hereinbefore, it is in about the best condition noted in a number of years.

E. Noyes Pond Dam

Water level in storage was just about at the elevation of the upper stoplog in the small spillway and water from the pond was overflowing. Stoplogs in the small spillway were at normal height. The water level of the pond was just at the elevation of the crest of the shallow side spillway.

The stone masonry wall with the concrete caps extending for the length of the dam, was found to be in fair condition. The downstream earth fill at the right of the spillway and in the general area of the public access site needs attention. Three sinkholes were noted and these should be filled with compacted earth. If the sinkholes were caused by seepage taking place under the embankment material, this seepage should be controlled.

The earth embankment fill in front of the masonry wall to the left of the spillway was noted to be okay. Water leaks through and under the masonry wall and emerges just to the left of the small spillway and downstream of the masonry structure. No earth is being washed out with this seepage water. The water apparently is coming through the masonry wall, following stone and coarse fill in front of the wall and emerging as noted. ~~If the embankment material in front of the wall shows~~ any sign of settlement or movement, the leakage should be located and corrected.



F. Tunxis Club New Dam at Penstock Site

Water level in storage on the day of inspection was about two inches above the crest of the spillway. Fish screens were in place on the crest and were relatively clean. The masonry of the spillway structure and the toe of the spillway were okay. There is a low concrete block retaining wall on the right of the spillway which supports the end of the earth embankment material. This retaining wall is in need of realignment and repair. Some of the blocks are becoming loose. The blocks should be realigned as necessary. Reinforcing rods should be inserted vertically in the voids of the blocks and then mass concrete should be poured down through the top of the upper layer of blocks to fill all block voids and to encase the reinforcing rods. This will result in the wall becoming one mass of concrete masonry.

The earth embankment, particularly to the right of the spillway, needs brushing and the development of a good growth of turf. Brush should be kept cut at the downstream face and along the toe of the embankment. The swale spillway at the right of the embankment should be properly shaped and defined. A good growth of sod should be developed in the swale spillway.

G. Tunxis Club New Trout Pond Dam

The concrete masonry spillway at this dam was found to be satisfactory. Normal stoplogs were in place in the central section of the masonry structure and water was stored to the normal height. A screen was on the crest of the spillway. It was relatively clean and free of debris. Water was overflowing the wide concrete crest.

At the small earth embankment to the left of the spillway, the downstream rock fill of the embankment and spillway as well as the concrete cap were all okay.

The stone masonry retaining wall was in satisfactory condition.

To the right of the spillway, the long earth embankment was found to be in fair condition but covered with a growth of weeds. This embankment should be maintained and cared for in such a manner that a good growth of turf will develop over the entire embankment area.

The stone masonry wall to the right of the spillway section and at the left end of the right earth embankment was found to be satisfactory. The concrete cap at the right side of the spillway and downstream thereof was satisfactory. However, under the concrete cap and above some of the stones of the downstream fill there is a fairly large void that should be filled with concrete. This void was pointed out in the last inspection report but nothing has been done by the owner to correct the condition.

All brush growth on top as well as on both faces of embankment construction should be kept cut down.

#### H. Tunxis Trout Pond Dam

This dam is in very poor condition. The swale spillway at the right of the dam is plugged with debris. This spillway should be cleaned and cleared of debris and it should be properly maintained at all times.

Earth fill of the dam embankment has been washed out in a number of places and sink holes have been formed between the two wooden chute spillways. Leakage takes place through the old log construction of the dam built upstream of the earth and rock fill. Timber and planking on the upstream face is rotten and the top sections of planking have failed. There

is a bad leak at the left wooden chute spillway just at the upstream end of the spillway chute. A large hole has been washed in the earth fill and leaking water from the pond can be observed flowing into and through this hole causing a continuous eroding action.

The asphalt topping of the dam has been broken in a number of places across the entire length of the dam.

In the opinion of the undersigned this dam is in very poor condition, is in need of major reconstruction and until such time as the work can be accomplished the pond should be drawn down far enough to prevent leakage through the dam. Lowering the pond two feet more or less may drop the water level below the rotted area of the upstream planking. The owner should prepare plans and specifications of the repair work to be done to reconstruct the dam.

I. Preston Dam

This dam is still breached and is in the same general condition as reported in previous years. No work has been done whatsoever in connection with the repair of the dam. The small beaver dam located in the pond just upstream of the main dam still exists and a small pond is formed by the beaver-made structure. The presence of the small beaver dam does not endanger persons and property downstream. There has been no work done in the general area of the dam. For all practical purposes camping in the area has been abandoned and there are few signs of persons being in the area.

J. Chamonix Chalet Properties, Inc. Dam

This dam was found to be in satisfactory condition. Water level in storage was at the crest of the vertical pipe spillway. The debris shield was satisfactory. The tube through the dam was okay. The toe area of

the dam in the vicinity of the tube was in good condition. No seepage whatsoever was noted along the toe of the dam. Some seepage emerged from the twin seepage pipes at the toe of the dam adjacent to the main spillway tube. However, this seepage is normal and would be expected. The outlet basin of the tube spillway was okay.

The upstream face of the embankment was in good condition and the rock fill surface was satisfactory. Downstream loam and seed cover is developing into a suitable turf growth. The gravel road on top of the dam was in good condition.

Some surface wash and gully formation was noticed at the left face of the dam where it abuts the left valley floor. One of the owners of the dam, Mr John Galanek, was present at the time of the inspection and he agreed that the gully and erosion would be taken care of by filling the gully with rip-rap.

The flood flow swale spillway was in satisfactory condition. The crest is well cleaned and has the erosion control walls both upstream and downstream of the crest. Side slopes of the swale spillway have been seeded and a good growth of grass was beginning to develop.

In general, this new dam was noted to be in good condition. Further inspections will be made as the year progresses prior to the submission of a final report on this particular structure.

Respectfully submitted,



George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
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BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Tolland  
July 25, 1968

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The routine inspection of dams in the Town of Tolland has now been completed. Every dam situated within Tolland has been examined at least once during the year 1968. The following is a report of the general conditions noted at the dams within the Town of Tolland.

A. Richmond Dam - Connecticut Valley Girl Scouts

Work has progressed on this dam to a point wherein the enlarged and improved embankment has been nearly completed. The embankment is fairly well shaped and final grading is fair. The toe area still needs work in the vicinity of the 12" outlet pipe. The pool with the V-notch weir planned for the end of the 12" discharge pipe will not be built, according to the project engineer. The 12" discharge pipe will terminate at an end wall already built at the toe of the dam and the water will simply flow downstream in the brook course.

The engineer on the project was directed to dig out the brook course as necessary, so that there will be free draining of the toe area and water discharged from the 12" outlet pipeline. He is also instructed to file a revised drawing showing the elimination of the toe pool.

The earth embankment adjacent to the overflow spillway at the left of the dam needs some attention. The downstream face of the embankment at the right concrete side wall of the spillway needs to be stabilized. The use of riprap or a dry stone masonry retaining wall was suggested to the project engineer. He will take care of this problem and will have the

work completed at the time of the next routine inspection of this new dam. Inspections of this dam have taken place from time to time all through the spring and early summer months, as the project has progressed. Another inspection is planned later in July as the final details are completed on the structure.

A discharge channel is needed around the dam and to direct overflowing water away from the toe of the embankment. This channel will be dug and will be stabilized with field stone and riprap.

On the day of inspection, July 17, 1968, the pond was filled almost to the crest of the spillway and to the elevation of the upper stoplog in the control box structure.

Construction work has moved along satisfactorily and it is expected that the dam will be completed in all details, except for the promotion of a turf cover, by the end of July.

Since this project is still under construction and, since representatives of the owner and the contractor were present at the time of inspection, there is no need at this time to send a copy of this report to the owner.

B. H. E. Newell Dam

The spillway at this dam was found to be o.k. No flashboards were in the slots at the crest. Water level in storage was just above the crest of the masonry overflow. The downstream stone masonry walls on both sides of the channel between the spillway and the highway culvert were in good condition. The apron in the channel was o.k. In the opinion of the undersigned, this structure is in satisfactory condition.

C. Lost Wilderness Dam

This dam is in the same general condition as reported in recent years. The man-made dam was breached in the flood of August, 1955. This dam remains breached. The opening in the old stone and earth fill dam is quite wide and deep. However, just upstream of the breach in the old man-made dam, a beaver dam still exists and it forms a pond nearly the same size as the pond originally formed by the man-made dam. The beaver dam seems to have suffered some damage as a result of the high rates of run-off caused by extremely heavy rainstorms during the past spring and particularly, in the month of June.

Whereas in the past, the beaver dam has been found to be heavily overgrown with a thick sod, much of this sod and growing vegetation was noted to have been washed away when the dam was inspected on July 15th. It is doubtful, however, that the beaver dam will fail. The structure appears to be fairly solid and, if it does fail, it will undoubtedly fail at a slow rate.

D. Camp Spruce Hill Dam (Victory Lake)

The embankment at this dam was found to be in good condition. The top surface is quite stable and shows little or no sign of any erosion. On the water side slope of the embankment, conditions were noted to be satisfactory. The dry side of the dam and the toe area were both found to be o.k.

The spillway structure was in good condition. The inspection of the dam was made in the presence of the owner of the Camp. The undersigned pointed out to him certain improvements that could be made at the spillway, particularly at the left side of the chute and channel extending from the spillway crest to the bridge over the spillway channel. It was recommended that concrete be placed adjacent to the upstream edge of the left bridge abutment and protection provided for the abutment as well as for the spillway channel side wall.

The usual stoplog was in the notch of the spillway and water level in storage was just at the top of the stoplog and the upper elevation of the permanent concrete crest.

The owner requested information relative to proper steps he must take in order to obtain permission to raise the elevation of the lake by one foot. I advised him that this could be accomplished by constructing an addition to the concrete spillway and that this addition could be in the form of a wall one foot in height, poured on top of the existing spillway and connected to the spillway by dowels extending into the existing concrete. I also advised the owner that the earth embankment would then need to be raised the same vertical distance to provide the required freeboard. The owner was advised that any change of this type to be made to the dam must be made in accordance with approved plans and specifications for the work. He was advised to engage an engineer and prepare the drawings and specifications for filing with your Honorable Board if he decides to increase the surface elevation of the lake.



E. Noyes Pond Dam

This dam was inspected in the presence of the groundskeeper and the committee in charge of dams at the Tunxis Club. The dam was found to be in good condition. Repairs recommended following the inspection of a year ago have been made. Water leakage thru and under the masonry wall has been stopped. Sink holes previously noted and reported have been repaired. The earth portion of this low dam was noted to be in fairly good condition. The stone masonry wall was o.k. The spillway notch was functioning satisfactorily and water was overflowing the stoplogs.

F. Tunxis Club New Dam at Penstock Site

Maintenance and repair work have been done to the embankment of this dam all in accordance with recommendations made at the time of the last inspection. All brush has been removed from the embankment. Loam has been placed over the entire embankment and the embankment improved in shape and width. The newly placed loam has been seeded and a good growth of grass is taking place.

The fish screen was in place in the spillway and was clean. The spillway was operating and was satisfactory.

Repairs made to the concrete block retaining wall on the right side of the spillway are satisfactory. Repair work is standing up very well.

The undersigned recommended to the groundskeeper and the Committee on Grounds that the dam should be provided with a swale spillway at the right end of the embankment. This swale spillway can be seeded and a turf cover developed in the swale. The swale will be formed on natural ground just beyond the right end of the dam.

G. Tunxis Club New Trout Pond Dam

This dam was found to be in satisfactory condition. The concrete spillway was o.k. The screen was in the spillway and it was fairly clear of debris. Both of the earth embankment sections are in fairly good condition and are covered with a fairly good growth of turf.

The stone fill on each side of the concrete spillway downstream of the spillway wall and the concrete caps on the stone fill were o.k. This dam has received maintenance and attention. It is in satisfactory condition.

H. Tunxis Trout Pond Dam

This dam is in fairly good condition. The new wood sheeting on the upstream face is o.k. The right swale spillway is clean and is operating.

Repairs are needed to the embankment fill on both sides of the right hand wooden spillway chute located adjacent to the right swale spillway. Also, along the right side of the stoplog spillway, repairs to the embankment are needed. At these described locations there are indications of embankment settlement and the voids should be cleaned of any debris and then plugged with compacted earth. The surface of the repair areas should then be paved with asphalt.

The dam embankment is fair and only normal seepage was noted along the toe. The left abutment area was o.k.

In the opinion of the undersigned, this dam is in very good condition.

I. Preston Dam

This dam is still breached and is in the same general condition as reported following previous inspections. No work has been done whatsoever in connection with the repair of the dam. A beaver dam is still located just upstream of the breach in the dam and another beaver dam has been built in the breach itself. The presence of the beaver dam, with the resulting pond does not endanger persons and property downstream.

For all practical purposes, the area at and surrounding this dam appears to be abandoned. The old house located downstream of the dam has been burned down. There is no sign of anyone having been in the area in recent weeks. The access road leading from Schoolhouse Road to the dam and being approximately 2-1/2 miles in length, is in deplorable condition. It is almost impassable. Sections of the roadway have been washed out and deep gullies have been formed by surface storm water run-off. Culverts in low areas have been flooded over as a result of small beaver dam construction in swampy sections. In another year or two, if no improvement is made to the access roadway leading into the site of the dam, the roadway will be completely impassable for anything other than a high-wheeled and multi-axle drive vehicle.

The dam has been breached for many years and it is recommended that the structure be dropped from the inspection routine.

J. Chamonix Chalet Properties, Inc. Dam

This dam was found to be in satisfactory condition. It was inspected in the presence of the property manager. Water level in storage was at the crest of the vertical pipe spillway. The debris shield was satisfactory. The tube thru the dam was o.k. The footbridge leading out into the water and terminating at the drawdown gate operating facility has been repaired and aligned.

The toe area of the dam in the vicinity of the spillway tube discharge end was in good condition. Little or no seepage was noted along this portion of the toe. No seepage was noted along other portions of the dam. The toe area was fairly solid and dry.

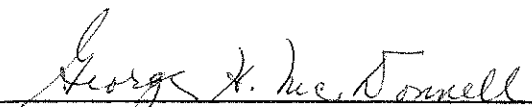
The two seepage pipes emerging from the toe, one on each side of the main spillway tube, discharged a small trickle of water. There is also some evidence of silt in these tubes which may have been washed down with the seeping water. The manager of the property was instructed to clean out the ends of the tubes and then observe whether or not additional silt was brought down by the seeping water.

Surface wash gullies previously reported have been filled with stone, and surface erosion along the downstream face of the dam at both sides of the valley seems to have been controlled.

The flood flow spillway was in satisfactory condition. The manager of the property was advised to have levels run along the top of the dam to determine whether or not the end of the embankment towards the flood flow spillway needs additional gravel to bring this portion of the embankment up to grade.

In general, this new dam was noted to be in fairly good condition.

Respectfully submitted,

  
George H. McDonnell  
County Hydraulic Engineer

GHM/amd

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND*** CONSULTING ENGINEERS

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS  
SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Tolland  
September 29, 1969

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

Recent inspections of dams conducted in the Town of Tolland have now resulted in each dam having been inspected at least once during the year 1969. The following is a report on the general conditions noted at each of the dams within the Town of Tolland.

## A. Connecticut Valley Girl Scouts

The embankment forming this dam was noted to be very good insofar as shape and surface condition are concerned. Though there is little or no vegetation growing on the embankment, the surface is hard and shows little or no sign of erosion. The toe area along the embankment is reasonably dry.

The owners should discourage any weed and brush growth which may begin to occur on the dam embankment and should promote a good cover of grass and sod.

Water level in storage has been drawn down. The stoplogs are out of the control structure, and water was being passed thru the dam by means of the drawdown pipeline. The drawdown gate was partly open, but the operating wheel seems to have rusted to the stem. The stem should be freed so that the wheel can raise and lower the gate stem without undue force and friction. The gate stem should be kept greased and oiled. The wheel controlling the drawdown gate should be operated periodically so that there will be no binding between the wheel and the threads of the gate stem.

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The spillway channel was satisfactory. Little or no erosion was taking place downstream of the toe of the dam embankment as a result of overflowing water from the spillway. The channel is being improved by further rock fill pavement. The entire spillway channel should be paved with rock to prevent any undue erosion in time of flood flow conditions.

In the opinion of the undersigned, the dam is safe. However, the owners should develop a good growth of sod on the dam embankment and should free the wheel from the operating stem of the drawdown gate.

### B. H. E. Newell Dam

This small concrete spillway structure was found to be in satisfactory condition. No flashboards were on the crest of the spillway and water level was at crest elevation. The stone sidewalls extending from the dam down to the highway culvert were o.k. The stone paving was rough, but only minor evidence of stone movement was noted.

The concrete floor in the brook at the toe of the dam is eroded somewhat but not bad enough as yet to require any repair.

In the opinion of the undersigned, this dam is satisfactory and safe.

### C. Lost Wilderness Dam

The man-made dam at this location is still breached. The beaver dam built within the breach of the man-made dam has been partly washed out and the beaver pond is at a low elevation. The height of the beaver dam is now only about 4 feet maximum above the elevation of the tail water in the brook.

No effort has ever been made to restore this pond thru the closure of the breach in the man-made dam other than beaver effort as reported in recent years.

### D. Camp Spruce Hill Dam (Victory Lake)

The embankment at this dam is well shaped. It is hard and shows very little evidence of any surface erosion. Seepage at the toe is minor. There is some turf cover on the sloping surface of the dam embankment.

# **TIGHE & BOND**

## **CONSULTING ENGINEERS**

The concrete wall of the spillway is in satisfactory condition. Astoplog is in the spillway crest and this should be removed from the notch in the spillway until after the spring runoff.

The floor of the spillway and the upstream edges of the roadway bridge abutments which form part of the spillway channel, are in need of repair. Mass concrete should be placed at the washed-out areas of the floor and adjacent to the bridge abutments. Concrete should be worked into all voids so that, when completed, there is a well paved concrete channel to pass over-flowing water from the toe of the spillway down thru and under the embankment bridge.

In the opinion of the undersigned, this dam will be safe if the spillway repairs as recommended are done at an early date.

The repair work was outlined to maintenance personnel at the site on the day of inspection. However, it is recommended that the owner be sent a letter-report on the condition of the dam advising him of the needed repair work.

### E. Noyes Pond Dam

On the day of inspection, water level in storage was at the top of the stoplogs in the control spillway. The upper log had been lifted slightly to release water between the bottom of the upper log and the top of the second log.

The stone and masonry wall extending along the top of this shallow earth embankment dam is deteriorating and should receive attention. Repairs should be made as necessary to prevent further deterioration of this wall.

The main spillway to the right of the stoplog structure is in satisfactory condition. It is clear of debris.

Hardly any seepage was noted downstream of the dam and the earth fill in front of the masonry portion of the dam was satisfactory.

In the opinion of the undersigned, this dam is safe, but does need maintenance and repair work as outlined.

### F. Tunxis Club New Dam at Penstock Site

The embankment of this dam, though rough in shape, is satisfactory. Turf growth on the top is fair to good. The downstream heavy rock fill is o.k. Water level in storage was noted to be just at the masonry crest of the concrete notch spillway.

# **TIGHE & BOND CONSULTING ENGINEERS**

The left section of the spillway notch was blocked with a stoplog on the day of inspection. The center and right sections of the spillway contained screens which were quite dirty and should be kept clean. There was no evidence that these screens had been cleaned recently.

The swale spillway at the right of the dam embankment was satisfactory. The entrance to the spillway should be kept clear of any high vegetation and debris.

The concrete spillway itself is satisfactory from a structural viewpoint. The toe area of the embankment, though wet, is satisfactory.

In the opinion of the undersigned, this dam is safe. However, the necessary maintenance work pointed out should be accomplished by the owner.

## **G. Tunxis Club New Trout Pond Dam**

The water level was at the crest of the spillway on the day of inspection. No stoplogs nor screen were in the side sections. A very dirty screen was in the center section. This screen should be removed since, in its present condition, it will decrease spillway capacity. The screen as existing, serves no useful purpose on the crest of the spillway.

At the left of the spillway, earth is being washed out from behind the overflow training wall adjacent to the access roadway.

The floor of the V-shaped section is broken and allows overflowing water to pass under the floor and the stone masonry wall. Repairs are needed to prevent this flow of water under the spillway section.

Embankment sections of the dam are in fairly good condition and are covered with a fair growth of grass. Toe areas were noted to be dry.

In the opinion of the undersigned, this dam is safe. However, the repair work as pointed out should be done at the left side of the spillway.

## **H. Tunxis Trout Pond Dam**

The wooden spillway chute at about the center of the dam is in satisfactory condition. The embankment to the left of this central chute is in fair condition. However, the embankment top between the two wooden spillways is in need of attention. Breaks in the asphalt surfacing and at the left of the wooden bridge over the drawdown spillway should be properly repaired.



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Stoplogs in the drawdown spillway were at normal height.

The right spillway chute has a leak to the right of the structure at the upper edge. Water is passing down thru the dam either under or beside this right hand spillway chute.

The swale spillway at the far right end of the dam was noted to be o.k.

Asphalt surfacing repairs are needed on that portion of the embankment between the drawdown structure and the right spillway.

Though the dam is safe, the owners should do the required maintenance as pointed out herein. Failure to repair the dam could lead to additional deterioration and eventual loss of the structure.

## I. Chamonix Chalet Properties, Inc. Dam

The embankment of this dam was in satisfactory condition. It is well shaped, has a fair grass cover, and the toe is relatively dry. The road on top of the dam is satisfactory. There is no settlement or worn portion on the roadway.

The outlet of the spillway tube is o.k. The two seepage pipes, one on either side of the main spillway tube, were noted to be o.k. and operating.

There was no evidence of any embankment settlement or wear anywhere on the downstream surface or on the top of the dam embankment. Erosion on side slopes is under control.

The spillway swale to the right of the dam is o.k. It is clear of any debris.

In looking up into the spillway discharge tube, the undersigned noted boulders and miscellaneous materials on the floor of the tube. These have probably been dropped down the shaft by persons in the vicinity of the vertical shaft spillway. A new protective wooden floor has been placed over the spillway shaft opening so that the dropping of boulders can no longer be done.

The undersigned met with the owner at the site and recommended to him that the debris and boulders be removed from inside the spillway tube. He agreed to investigate this matter and remove the boulders.

In the opinion of the undersigned, this dam is safe.

Respectfully submitted,

*George H. McDonnell*  
George H. McDonnell  
County Hydraulic Engineer

GEORGE H. McDONNELL  
PHILIP W. SHERIDAN  
EDWARD J. BAYON

# ***TIGHE & BOND***

***CONSULTING ENGINEERS***

CIVIL, SANITARY AND ELECTRICAL ENGINEERING  
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SUPERVISION OF CONSTRUCTION AND OPERATION

BOWERS AND PEQUOT STREETS  
HOLYOKE, MASSACHUSETTS  
TEL. JEFFERSON 3-3991

CD Tolland  
August 7, 1970

The Honorable the Board of County Commissioners  
52 State Street  
Springfield, Massachusetts

Gentlemen:

The undersigned has conducted inspections of dams within the Town of Tolland and every dam situated within that Town has now been inspected at least once during the year 1970. The following is a report on the general conditions noted at each of the dams located in the Town of Tolland.

A. Connecticut Valley Girl Scouts

The embankment forming this dam was found to be in fair condition. It was very good as to shape but no turf has been developed on the surface. Some surface erosion was noted on the downstream face of the embankment with fine grained soil being washed onto the toe area and into the rock fill of the toe and spillway channel.

The owners should promote a good growth of grass and turf over the entire embankment surface.

Loam should be placed on the embankment and then properly fertilized, seeded and watered. The development of a growth of grass and a good turf cover should be started either in the fall of this year or in the spring of 1971 at the latest.

The overflow spillway was found to be in good condition. Water level in storage was just below the crest. There were no flashboards in the crest and no provisions for flashboards were provided in the design.

The stoplog structure was o.k. and the gate operator has been greased as previously recommended.

The spillway overflow channel was found to be satisfactory. The channel itself has been well paved with field stone and its alignment is away from the embankment toe. As previously recommended, heavy field stone protection has been provided along the toe area of the embankment parallel to the spillway channel. Water flowing thru the flood flow spillway channel does not endanger the toe of the embankment in any way.

The toe area was found to be dry. The only seepage observed was in the vicinity of the endwall at the drawdown pipe. Some seepage was occurring adjacent to the endwall itself and on the right bank of the brook valley just below the endwall. The seepage is negligible and no fine grain material was moving with the small trickle of seepage water.

In the opinion of the undersigned, the dam is in good condition and is safe. However, the owner should be advised to develop a good grass and turf cover on the embankment.

B. H. E. Newell Dam

The spillway crest at this dam was o.k. There were no flashboards on the crest and water level in storage was at crest elevation.

The field stone sidewalls below the spillway and extending to the roadway culvert were found to be satisfactory. The concrete cap on each of the sidewalls was o.k.

Some wear and erosion of concrete was observed at the sides of the spillway notch in the crest area but this erosion is not bad.

The concrete floor of the channel just below the spillway and upstream of the roadway culvert is partly broken and undermined but the condition is not dangerous.

The State Highway roadway is directly below the dam and thus is a part of the dam. Thus the embankment is very wide in relation to its height.

In the opinion of the undersigned, the dam is safe.

C. Lost Wilderness Dam

This dam, destroyed in the hurricane flood of 1955 and partially restored by beaver action shortly thereafter, has now been rebuilt in part by the owner. Construction has taken place since the time

of the last inspection. It would appear that a borrow area has been operated just to the right of the dam location and that earth fill has been brought into the dam area and compacted to restore a portion of the old dam embankment.

When the dam was inspected a year ago, it was observed that the beaver dam built within the breach caused by the hurricane flood had been partly washed out and that the pond was at a low elevation. The height of the beaver dam was only about 4 feet above the elevation of the tail water in the brook as reported in 1969.

At the present time water has been restored to the June 1955 elevation through the placing of fill and, in part through the construction of a short and shallow beaver dam.

The old spillway channel has been reactivated by the owner in placing the fill.

In the opinion of the undersigned, now that the owner has taken steps to replace a portion of the dam and since the pond is held back as a result of this action and not as a result of beaver action alone, the owner has violated the regulations relative to dams in that a large pond has now been restored which, if suddenly released, could do damage to persons and property downstream.

It is recommended that the owner of the dam be directed to remove the fill placed at the site of the dam and to completely breach the dam until such time as proper plans and specifications for a new dam have been prepared and filed. The plans and specifications should provide for a proper spillway capable of passing anticipated flood flows.

D. Camp Spruce Hill Dam (Victory Lake)

The embankment of this dam was in good condition. It is well shaped and though the surface has a poor turf cover, no erosion was observed.

The spillway was found to be o.k. The usual flashboard was in the crest notch and water level in storage was at the top of the flashboard.

The concrete masonry was noted to be in good condition. The concrete paved channel bottom just below the spillway was o.k. Voids on each side of the channel spillway at the upstream ends of the bridge abutments have been filled with concrete and the end areas of the abutments concreted. As a result, overflowing water will not erode away the upstream end stones of the stone bridge abutments.

The stone masonry walls which form the two abutments and the stone floor of the channel between the abutments were noted to be o.k.

The undersigned advised the camp maintenance man who was present at the time of the inspection that consideration should be given to the pouring of mass concrete on the channel floor under the bridge and forming a trough of concrete which would seal the bottom of the dry stone masonry walls forming the bridge abutments. He said this would be done within the next year.

The toe area of the embankment was found to be in good condition and reasonably dry.

E. Noyes Pond Dam

Some repair work has been done at the stone wall to the left of the dam. Concrete has been placed and shaped to repair the eroded and worn areas of the stone masonry.

The central spillway was in normal condition with usual stoplogs in place. There was no sign of erosion in the stream bed below the spillway. Water level in storage was at the elevation of the top stoplog.

Flood flow spillways were observed to be o.k. No seepage of any consequence was noted along the entire length of the dam and at the toe.

The dam is in good condition and spillway facilities are all satisfactory. In the opinion of the undersigned, the Noyes Pond Dam is safe.

F. Tunxis Club New Dam at Penstock Site

The embankment at this dam is in the best condition noted in recent years. It is now well shaped and a good turf cover is being developed over its surface.

The toe area is wet but little or no movement of water was observed at the toe.

The spillway was o.k. Screens are clean and stoplogs are at normal elevation. Water level in storage was at the usual crest grade.

The flood flow swale spillway at the right of the embankment was noted to be o.k. and a turf cover is developing in the swale.

The concrete of the main spillway was noted to be in good condition. Abutment ends were o.k. and there was no sign of erosion or cracking.

In the opinion of the undersigned, the dam is in good condition and is safe.

G. Tunxis Club New Trout Pond Dam

The earth embankment sections of this dam were satisfactory. The spillway was functioning and water level in storage was at spillway crest elevation. The screens were in the spillway notch and were noted to be clean. The concrete masonry of the spillway was in good condition.

The stone masonry abutments on each side of the spillway, at water level on the upstream side, are undermined and repairs should be made with mass concrete before the unsupported cemented field stones break away and fall.

The owner could lower the pond a foot or two, provide a small form at the base of each wall and then pour mass concrete behind the form and work this mass concrete into the void at the base of each abutment wall.

H. Tunxis Trout Pond Dam

This dam has been repaired and is in good condition. An asphalt concrete surface has been placed on the top of the entire embankment. The wooden spillway chutes have been repaired as needed.

The swale spillway at the right end of the dam has been cleared of debris and flood water can pass through this spillway by flowing over the entrance crest logs.

At the left end of the dam the ledge abutment area is in good condition and flood flow water can also pass over this section.

The toe area was noted to be normal. The left side was found to be dry and the usual seepage was noted at the center and right portion of the dam toe.

On the day of inspection, water level in storage was at normal elevation.

The right sideboard of one plank spillway was not supported sufficiently and the board was bent inward slightly causing a crack in the surface asphalt pavement. This sidewall should be properly supported.

In the opinion of the undersigned, the dam is in very good condition and is safe.

I. Chamonix Chalet Properties, Inc. Dam

The embankment forming this dam was found to be in very good condition. The turf cover is only fair but no erosion was observed. The owner is attempting to develop a better growth of turf.

The toe area was dry. The seepage pipes were noted to be functioning. The right pipe contains some fine grained sand up in the discharge end that apparently is coming from the dam embankment. The amount involved is very small and none of the sand is flowing out of the pipe with the trickle of seepage water. Advised the owner to observe the toe of the dam frequently and if he ever noted any surface dampness or any settlement, to inform the undersigned. The toe area is as dry and as stable as I have noted since the dam has been built.

The cobblestone filled surface drains on each side of the valley and parallel to the toe of the dam embankment were noted to be in good condition and well maintained.

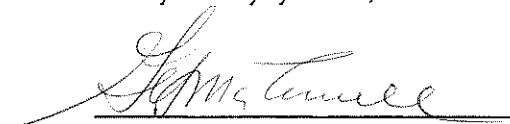
Water level in storage was at about normal crest elevation.

The emergency flood flow swale spillway at the right end of the dam was o.k.

The boulder paved slope on the water side of the embankment was in good condition. The owner requested that he be allowed to cover the boulders with sand to form a more asthetic and beach type slope to the dam embankment surface. The undersigned advised him that he could do this but that in all probability the sand would be washed out by wave action in time of storm conditions. The owner was advised to file a letter of request with your Board if he decides to cover the boulders with sand.

The bridge leading out to the drawdown gate operating stem was in good condition. In the opinion of the undersigned, this dam is safe.

Very truly yours,



George H. McDonnell  
County Hydraulic Engineer





**End of Book D25-3 ~ Dams ~ Hampden County**